DETAILED REQUIREMENTS DOCUMENT
FOR THE
PROBLEM REPORTING DATA SYSTEM (PDS)

Job Order 88-099

Prepared By

Lockheed Electronics Company, Inc.
Aerospace Systems Division
Houston, Texas

Under Contract NAS 9-12200
For
INSTITUTIONAL DATA SYSTEMS DIVISION

National Aeronautics and Space Administration

LYNDON B. JOHNSON SPACE CENTER

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February 1975

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FOR THE
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Produced By
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For
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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
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FOREWORD

The purpose of the Detailed Requirements Document is to define and outline the requirements for the Problem Reporting Data System. The Problem Reporting Data System is a computer-based system designed to track the status of problems and corrective actions pertinent to Shuttle hardware. This document describes the input, processing, output, and performance requirements of the system. In addition it will serve as a baseline for design, testing, and implementation of the system. Any significant changes made to the baseline will require Applications Configuration Management Board review and approval.

The Detailed Requirements Document was developed in response to Job Order 88-099, the Problem Reporting Data System, issued July 1, 1973, and in accordance with the Task Description dated October 1974 in support of the Institutional Data Systems Division at the Lyndon B. Johnson Space Center.

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TABLES

GLOSSARY

PDS — Problem Reporting Data System
A computer-based system for tracking the status of problems and corrective actions related to Shuttle hardware.

CFE — Contractor Furnished Equipment
Equipment which is provided to NASA by a prime contractor.

GFE — Government Furnished Equipment
Equipment which is procured or manufactured by JSC or other NASA Centers.

SR&QA — Safety, Reliability and Quality Assurance Office

DRD — Detailed Requirements Document

S2K — System 2000
General purpose data management system which provides remote access to one or more data bases.

QAD — Quality Assurance Division
Responsible for management of the Problem Reporting Analysis and Corrective Action (PRACA) System, and Resolution of Manufacturing problems.

PAE Problem Assessment Engineering
Responsible for permanent storage and retrieval of data pertaining to problems occurring on JSC hardware. Acts as the focal point for all problem data at JSC, including distribution of problem reports and problem resolution information.

IDSD Institutional Data Systems Division

SPIMS Shuttle Program Information Management System

PRACA Problem Reporting Analysis and Corrective Action
A system established to record, report, analyze, and resolve problems occurring on hardware programs. It also defines procedures for processing of information resulting from these problems.

IPR Initial Problem Report
Utilized to identify those data elements required to identify and report an initial problem.

TERMS WITHOUT ACRONYMS

* Failure
The inability of a system, subsystem, component, or part to perform its required function within specified limits, under specified conditions, for a specified duration.

* Unsatisfactory Condition
Any defect for which engineering resolution is required and which requires recurrence control beyond the specific article under consideration.

* Problem
Any failure or unsatisfactory condition that occurs (1) during, or subsequent to, production acceptance testing, or (2) prior to acceptance testing that will, or has the potential to, adversely affect safety, contribute to schedule impact or launch delay, or result in design change.

* Hazard
The presence of a potential risk situation caused by an unsafe act or condition.

* Corrective Action
Action taken to preclude occurrence of an identified hazard or to prevent recurrence of a problem.

* Defect
A condition of any hardware in which one or more characteristics do not conform to the specified requirements.

* Acceptance Testing
Tests to determine that a part, component, subsystem, or system is capable of meeting performance requirements prescribed in the purchase specification or other documents specifying what constitutes adequate performance capability for the item in question.

* Nonconformance
A condition of any article, material, or service in which one or more characteristics do not conform to requirements.

* Open Problem
A problem which has been reported and for which responsible NASA management personnel have not approved the problem resolution submitted by the supplier.

* Closed Problem
A problem is closed when the hardware supplier is formally notified of NASA concurrence with the problem analysis (including determination of the cause) and has implemented corrective action to preclude recurrence of the problem.

* Explained Problem
  A problem is explained when the supplier is formally notified of NASA concurrence with the problem analysis and rationale for not establishing corrective action.

* Resolved Problem
  A problem that has been closed or explained.

* System-Level Problem
  Any problem (1) occurring on criticality 1 and 2 hardware that fails in the criticality 1 or 2 mode, (2) occurring on a common hardware item, as listed on the Common Usage Item List (CUIL), (3) affecting an element physical interface, (4) Problems, when recognized by the applicable Element Project Office (EPO) to cause impact on a program level milestone or launch schedule of a space shuttle vehicle.

* Manufacturing-Oriented Problem
  A problem attributed to human error or a deficiency in a manufacturing process or procedure.

* Design-Oriented Problem
  A problem attributable to a deficiency in the hardware design or end item specification that may require a design change or waiver to resolve.

REFERENCES AND PERTINENT DOCUMENTS

1. Support Contractor Job Order 88-099, Amendment 4, "Problem Reporting Data System," JSC Computation and Analysis Division, October 1974.

2. Task Description for the Problem Reporting Data System (PDS), Amendment 4, Job Order 88-099, October 1974, LEC-0679.

3. Specification for Problem Data System, Interim, JSC Quality Assurance Division, July 1973.

4. Project Implementation Plan for the Problem Reporting Data System, Job Order 84-367, June 1974 LEC-1260.

5. Raines, M. L., Director Safety, Reliability and Quality Assurance, Management Manual "Problem Reporting and Correction Action System for JSC Programs", JSCM 5330 Revision A, Draft, July 1974.

6. Space Shuttle Program Definition and Requirements, Volumes I, II, V, XIII, NASA JSC 07700.

7. IPDS User's Guide, JSC-09414, LEC-5513.

1.0 SYSTEM OVERVIEW

1.1 IDENTIFICATION

This Detailed Requirements Document (DRD) has been prepared for the Lyndon B. Johnson Space Center (JSC), Institutional Data Systems Division (IDSD), by the Shuttle Information Management Systems Department of Lockheed Electronics Company, Inc. (LEC) in response to support contractor job order 88-099, Problem Reporting Data System (reference 1) and in accordance with Task Description for the Problem Reporting Data System (reference 2). The Problem Reporting Data System (PDS) is a computer-based system for tracking the status of problems and corrective actions related to Shuttle hardware and other programs.

The participants in the DRD are the Quality Assurance Division (Safety, Reliability and Quality Assurance Office), the Data System Development Branch (IDSD), and the Shuttle Information Management Systems Department (LEC).

1.2 BACKGROUND

In the mid-sixties the Apollo Failure Data System was developed for the Reliability and Quality Assurance Office for automated data processing of Apollo failures. Contractors and NASA organizations would report failures by way of magnetic tape or punched cards, and the system would edit and store the data in master files. Outputs from the system consisted of summary, status, and history reports for management visibility and specially constructed summary reports.

The Apollo Failure Data System operates only in batch mode. It does not have the capability to collect and process problem data with remote terminals, can not display problems in real time, and experiences delays of up to two months between problem detection and system recognition of the problem. These shortcomings coupled with a limited data processing capability will not satisfy the requirements of future JSC programs. Therefore, a more comprehensive system is needed. A set of interim specifications (reference 3) were published by Quality Assurance Division and a list of basic requirements were established. Working with the basic requirements, a Project Implementation Plan for PDS (reference 4) was written which established the feasibility of developing the Problem Data System.

Prior to the implementation of the final PDS an Interim Problem Data System (IPDS) was established. IPDS accomplished two major objectives: the storage of problem data in machine readable form for eventual transfer to PDS and the production of a weekly Open Problem List. In addition, it provides a full problem listing batch report and responds to certain online requests. IPDS was implemented on the CYBER computer, under the KRONOS operating system, and utilizing SYSTEM 2000 as the data management system software.

1.3 GENERAL DESCRIPTION

The Space Shuttle Program Office (SSPO) has levied Problem Reporting and Corrective Action requirements on Johnson Spacecraft Center (JSC), Kennedy Space Center (KSC), and Marshall Space Flight Center (MSFC) Element Project Offices and their contractors through the Program Definition

and Requirements documents JSC 07700. JSC 07700 has established common reporting procedures, timelines, and data elements across the Space Shuttle program. The Quality Assurance Division of the Safety, Reliability and Quality Assurance Office (SR&QA) is responsible for managing problem reporting and corrective action for JSC. The central facility at JSC for input/output control of the PDS data base will be the Problem Assessment Engineering (PAE) group.

Problem reporting activity consists of collecting, updating, maintaining, reporting, and tracking of data which completely describe Shuttle hardware problems and their resolution. Problem reporting and problem tracking at JSC applies to all orbiter vehicles and their associated GFE and selected GSE and system level problems; therefore, in order to efficiently process the anticipated volume of data, the Problem Reporting Data System described in this DRD will be a computer-based, interactive system. The benefits expected from this system include rapid interactive tracking of problem status and corrective actions, the rapid response to the users needs for pertinent information, the ability to perform online updates, data searches and code transformations, and the display of data in predefined reports.

When a problem is discovered (on site or off site), certain required information will be assembled regarding the problem. The Problem Assessment Engineering (PAE) group will be the focal point for input/output control and will assign password and security codes to the various users. Those reporting agencies/users without access to PDS terminals will submit initial problem data and subsequent information to the PAE via telephone, telecopier, and/or

U.S. Mail. The PAE will then be responsible for entering the initial problem data in the JSC PDS computer and for supplying reports to these reporting agencies/users. Those reporting agencies with password authority and having access to a PDS terminal (onsite and remote) will submit all data (initial problems or subsequent information) directly to the JSC PDS computer. They will also have the capability to receive online output data from the computer such as editing errors and reports. Copies of the offline reports will be distributed by the PAE or the operational group depending on operational procedures to be established.

Rigorous edits will be performed on all submitted data to protect against erroneous entry of data into the data base. All coded fields will be edited for valid codes, correct format, and authorization before the data is accepted. Access to the data base will be controlled by PAE with valid passwords. A system of access codes will control the internal portion of the data base from unauthorized read or updates.

PDS will respond to direct queries of the data base. The user will be able to search selected data fields for specific data values, perform boolean logic to identify problem reports from which data is to be selected, sort extracted data, and display selected data in predefined formats. In the event that new or additional reports are required after the system is operational, a procedure will be established between the user and IDSD to add the required capability to the system within forty-eight (48) hours.

PDS will maintain the data base integrity and prevent significant loss of data by periodic copying of the data

base. These data base dumps and the transaction logs will allow recovery of the data base in the event of a damaged data base. Nominally, the last two or three transactions will be lost. The maximum loss will not exceed twenty-four hours of transactions.

1.4 FUTURE REQUIREMENTS

Archiving of closed problems and batch update capability is not covered in this DRD since it is anticipated that these requirements will not exist for at least the first two years of operation. These requirements will be covered in a subsequent release of the Problem Data System.

Since requirements for the Kennedy Space Center's Launch Processing System have not been completely defined, no provisions have been made in this DRD for utilization of the system by KSC other than the ability to update, retrieve and display JSC system level problem reports. Depending on KSC future requirements it may be necessary to establish a second or sister data base in order for KSC to utilize the PDS for their own application.

1.5 ASSUMPTIONS AND CONSTRAINTS

PDS is an application that comes under the auspices of the Shuttle Program Information Management System (SPIMS). The SPIMS working group will utilize the Control Data Corporations's CYBER 74 as the central computer system for SPIMS applications. The operating system is a modified KRONOS which supports multiprogramming, high-level compilers, and batch and on-line modes of operation. The

communication management system is a modified SPIMS Terminal and Communications Subsystem that validates message transmissions, handles error conditions, and allows dedicated connections without timing out. The data management system is a modified System 2000 that operates in batch and on-line mode, provides selecting and sorting of output, and allows for high level procedural language interface. In addition, System 2000 supports variable-length fields, several types of security, inverted file hierarchical and repeating-group data base structures, and processing of multiple data bases.

The SPIMS working group have identified several modifications to be made to KRONOS, Terminal and Communications Subsystems, and System 2000. These modifications are identified in the PIP for PDS and will not be listed. However, this Detailed Requirements Document has been produced in conjunction with these assumptions.

1.6 EQUIPMENT

The equipment capabilities required for access to PDS are a high-speed line printer for offline reports, several magnetic tape drives for transaction logging and report files, thirteen identified remote terminals with hardcopiers, communications equipment for maximum of ten concurrent online users, random access mass storage for 48 million characters in online data base, and core storage for an estimated 35,000 words of application software.

2.0 SYSTEM REQUIREMENTS

2.1 DATA BASE INPUT/OUTPUT DATA ELEMENT DESCRIPTION

The NASA JSC Shuttle Problem Display is the focal point of the PDS and presents all input/output data elements required of the system. These elements, in various combinations, are utilized in composing all other required problem data reports. This display is the vehicle for the interactive capabilities of the PDS and data base input, update, deletion and change. As such, the understanding of the intent and restrictions on each component data element is essential. The following discussion treats each major division of the Display and then each element of the particular division. Sequentially presented in the Display element discussion are:

- JSC Shuttle Problem Standard Display Format and Example.
- JSC Shuttle Problem Express Display Format and Example.
  - Problem Identification Division.
  - Hardware Identification Division.
  - Problem Effectivity Division.
  - Problem Description Division.
  - Pertinent Documents Division.
  - Remarks Division.
  - Analysis Division.
  - Resolution Division.

The JSC Shuttle Problem Standard Display Format is used for data elements input and output and is shown on the

following three pages. The format of the first page provides for identification and description of the problem and hardware and for other closely related information. The format of the second page provides for identification of pertinent documents and additional appropriate written narrative information of the problem. Page 3 provides for the resolution narrative.

The JSC Shuttle Problem Express Display is similarly used when Express codes are used. The express forms are presented after the Standard Displays.

Code lists utilized for editing input data elements are listed for each element where applicable. These lists are shown for examples and are not necessarily complete; however, if a data element is to be verified utilizing a list, then a list is shown. Otherwise, the data element will not be edited against a list of valid values.

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*DATE                 JSC SHUTTLE PROBLEM STANDARD DISPLAY               PAGE 001*
*            PROJECT:<          >-<                          >                   *
*                                                                                *
*   ACTION ASSIGNEE:<                    >        SSM/TM:<                      >*
*                                                                                *
*PROBLEM IDENTIFICATION:                                                         *
*   SUBSYSTEM <      >     LEVEL <        >       REPORT NO. <             >    *
*   STATUS <         >     TYPE <           >     REFERENCE NO. <            >   *
*   VEHICLE ON <  >        CRIT. <          >     WORK UNIT <              >     *
*   LOCATION <      >      SUSP/VER <     >       OCCUR. DATE <  /  /  >         *
*   TEST/OPER. <  >        INIT/SUBS <     >      D/T REC. <  /  /  -     >      *
*   CAUSE <            >   PAE REVIEW <  >        D/T UPDATED <  /  /  -        >*
*   FAIL MODE <          >                        RESOLUTION DATE:               *
*   COND. MAT. <          >                          ESTIMATED <  /  /  >        *
*   PREVAIL. COND. <           >                     ACTUAL    <  /  /  >        *
*   TIME/CYC. <     - >                           HDW DISP   <              >    *
*   TEST DOCUMENT NUMBER <              >         CONSTRAINT <              >    *
*                                                                                *
*HARDWARE IDENTIFICATION:                                                        *
*   TEST/PROC HARDWARE                                                           *
*      PART NAME     <                   >        MANUFACTURER  <      >         *
*      PART NUMBER   <                   >        SERIAL/LOT   <                >*
*   NONCONFORMING ARTICLE                                                        *
*      PART NAME     <                   >        MANUFACTURER  <      >         *
*      PART NUMBER   <                   >        SERIAL/LOT   <                >*
*   NEXT HIGHER ASSEMBLY                                                         *
*      PART NAME     <                   >        MANUFACTURER  <      >         *
*      PART NUMBER   <                   >        SERIAL/LOT   <                >*
*   CONTRACT END ITEM                                                            *
*      PART NAME     <                   >        MANUFACTURER  <      >         *
*      PART NUMBER   <                   >        SERIAL/LOT   <                >*
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*PROBLEM EFFECTIVITY:                                                            *
*   MISSION NO.    *      *      *      *      *      *      *      *            *
*   VEHICLE NO.    *      *      *      *      *      *      *      *            *
*   CRITICALITY    *      *      *      *      *      *      *      *            *
*   STATUS         *      *      *      *      *      *      *      *            *
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Figure 2-1

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*DATE                  JSC SHUTTLE PROBLEM STANDARD DISPLAY             PAGE 002*
*                                 CONTINUED                                    *
*D/T UPDATED <  /  /  -     >                         REPORT NO. <            >*
*PERTINENT DOCUMENTS:                                                          *
*       TYPE         ISSUE SITE       DOCUMENT NUMBER        ISSUE DATE       *
*    <          >   <      >      <               >      <  /  /  >          *
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Figure 2-1 (Continued)

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*DATE                 JSC SHUTTLE PROBLEM STANDARD DISPLAY          PAGE 003*
*                                CONTINUED                                *
*D/T UPDATED <  /  /  -    >                      REPORT NO. <           >*
*RESOLUTION:                                                              *
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Figure 2-1 (Concluded)

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*DATE                JSC SHUTTLE PROBLEM EXPRESS DISPLAY          PAGE 001*
*                              PROJECT:< >                                  *
*                                                                           *
*   ACTION ASSIGNEE:<                    >      SSM/TM:<                   >*
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*PROBLEM IDENTIFICATION:                                                    *
*   SUBSYSTEM <      >     LEVEL < >            REPORT NO. <              >  *
*   STATUS < >             TYPE < >             REFERENCE NO. <           >  *
*   VEHICLE ON <    >      CRIT. < >            WORK UNIT <             >    *
*   LOCATION <      >      SUSP/VER < >         OCCUR. DATE <  /  /  >       *
*   TEST/OPER. < >         INIT/SUBS < >        D/T REC. <  /  /  -    >     *
*   CAUSE <    >           PAE REVIEW < >       D/T UPDATED <  /  /  -    >*
*   FAIL MODE <  >                              RESOLUTION DATE:             *
*   COND. MAT. <  >                                ESTIMATED <  /  /  >      *
*   PREVAIL. COND. <  >                            ACTUAL    <  /  /  >      *
*   TIME/CYC. <      - >                        HDW DISP    < >              *
*   TEST DOCUMENT NUMBER <                  >   CONSTRAINT <             >   *
*                                                                           *
*HARDWARE IDENTIFICATION:                                                   *
*   TEST/PROC HARDWARE                                                      *
*      PART NAME     <                    >    MANUFACTURER  <       >      *
*      PART NUMBER   <                    >    SERIAL/LOT    <             >*
*   NONCONFORMING ARTICLE                                                   *
*      PART NAME     <                    >    MANUFACTURER  <       >      *
*      PART NUMBER   <                    >    SERIAL/LOT    <             >*
*   NEXT HIGHER ASSEMBLY                                                    *
*      PART NAME     <                    >    MANUFACTURER  <       >      *
*      PART NUMBER   <                    >    SERIAL/LOT    <             >*
*   CONTRACT END ITEM                                                       *
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*      PART NUMBER   <                    >    SERIAL/LOT    <             >*
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*PROBLEM EFFECTIVITY:                                                       *
*   MISSION NO.  *      *      *      *      *      *      *      *          *
*   VEHICLE NO.  *      *      *      *      *      *      *      *          *
*   CRITICALITY  *      *      *      *      *      *      *      *          *
*   STATUS       *      *      *      *      *      *      *      *          *
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Figure 2-2

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*DATE                JSC SHUTTLE PROBLEM EXPRESS DISPLAY          PAGE 002*
*                          CONTINUED                                      *
*D/T UPDATED <  /  /  -    >                  REPORT NO. <              >*
*PERTINENT DOCUMENTS:                                                    *
*        TYPE      ISSUE SITE       DOCUMENT NUMBER       ISSUE DATE    *
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Figure 2-2 (Concluded)

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*DATE              JSC SHUTTLE PROBLEM STANDARD DISPLAY              PAGE 001*
*             PROJECT:<         >-<                          >              *
*                                                                           *
*   ACTION ASSIGNEE:<                    >       SSM/TM:<                  >*
*                                                                           *
***************************************************************************
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Project

Indicates the highest level under which the problem reports are to be classified. Project and Problem Report Number together uniquely identifies a problem report in this data base. This item may be changed only through deleting and adding the entire problem.

Exp Char Length	Std Char Length	Code List	Format	Search Key	Repeating Group	Required For IPR
1	8	Yes	A	Yes	No	Yes

Source: Originator.

Edits Performed:

- Checks code list for valid entry. Blanks are not acceptable.

Acceptable Input:

- Value entered into data base.

Unacceptable Input:

- ADDITIONS: New Problem Report will be rejected unless Originator enters a valid value for this element.
- CHANGE: Value cannot be changed. Entire problem must be deleted and re-entered.

EXAMPLE:

```
***************************************************************************
*DATE 03/07/75     JSC SHUTTLE PROBLEM STANDARD DISPLAY              PAGE 001*
*             PROJECT:<ORBITER >-<STRUC VERTICAL STABILIZER >               *
*                                                                           *
*   ACTION ASSIGNEE:<D.R.JONES           >       SSM/TM:<S.P.WEISS         >*
*                                                                           *
***************************************************************************
```

CODE LIST, PROJECTS

EXPRESS CODE	STANDARD ABBREVIATION	DEFINITION
B	SRB	SPACE SHUTTLE SOLID ROCKET BOOSTER
E	ET	SPACE SHUTTLE EXTERNAL TANK
L	L&L	SPACE SHUTTLE LAUNCH AND LANDING
M	ME	SPACE SHUTTLE MAIN ENGINE
O	ORBITER	SPACE SHUTTLE ORBITER VEHICLE AND GROUND SUPPORT EQUIPMENT
P	PAYLOADS	SPACE SHUTTLE PAYLOADS
R	GFE	SPACE SHUTTLE GOVERNMENT-FURNISHED EQUIPMENT

TITLE BLOCK, SUBSYSTEM

```
**********************************************************************
*DATE              JSC SHUTTLE PROBLEM STANDARD DISPLAY        PAGE 001*
*            PROJECT:<        >-<                                      *
*                                                                      *
*   ACTION ASSIGNEE:<                    >      SSM/TM:<              >*
*                                                                      *
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```

Subsystem Title (Displayed in Background Mode)

The Subsystem name. The computer will extract the subsystem title from the subsystem code list based on the subsystem code provided by the originator. Any value entered by an Originator for this element will be rejected.

Char Length	Code List	Format	Search Key	Repeating Group	Required For IPR
25	Yes	A	Yes	No	No

Source: Computer. See Subsystem Code List.

Edits Performed:

- No edits performed.

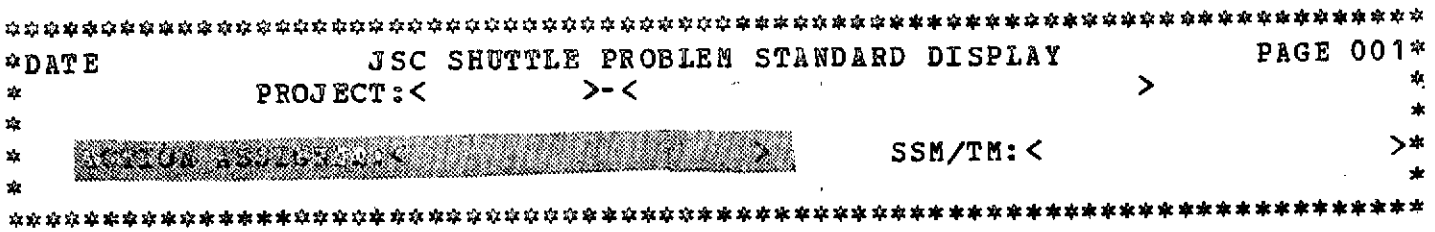
Acceptable Input:

- Value entered into data base.

Unacceptable Input:

- None.

TITLE BLOCK, ACTION ASSIGNEE



Action Assignee

The individual who has primary responsibility for tracking this problem. The PAE will enter the value for this element. Any value entered other than by PAE for this element will be ignored.

Char Length	Code List	Format	Search Key	Repeating Group	Required For IPR
18	No	AN	Yes	No	No

Source: PAE.

Edits Performed:

- No edits required for this element. System will accept any value entered by PAE up to the maximum character length.

Acceptable Input:

- Value entered into data base.

Unacceptable Input:

- None.

TITLE BLOCK, SUBSYSTEM MANAGER/TECHNICAL MONITOR (SSM/TM)

```
*DATE                JSC SHUTTLE PROBLEM STANDARD DISPLAY          PAGE 001*
*          PROJECT:<        >-<                        >                   *
*                                                                          *
*   ACTION ASSIGNEE:<                    >     SSM/TM:<                  >*
*                                                                          *
```

Subsystem Manager/Technical Monitor (SSM/TM) (Displayed in Background Mode)

The subsystem manager or technical monitor who is responsible for the subsystem. The computer will extract the SS/TM from the Subsystem Code List based on the subsystem code provided by the originator. Any value entered by an Originator for this element will be ignored.

Char Length	Code List	Format	Search Key	Repeating Group	Required For IPR
18	No	AN	Yes	No	No

Source: Computer. See Subsystem Code List.

Edits Performed:

- No edits performed.

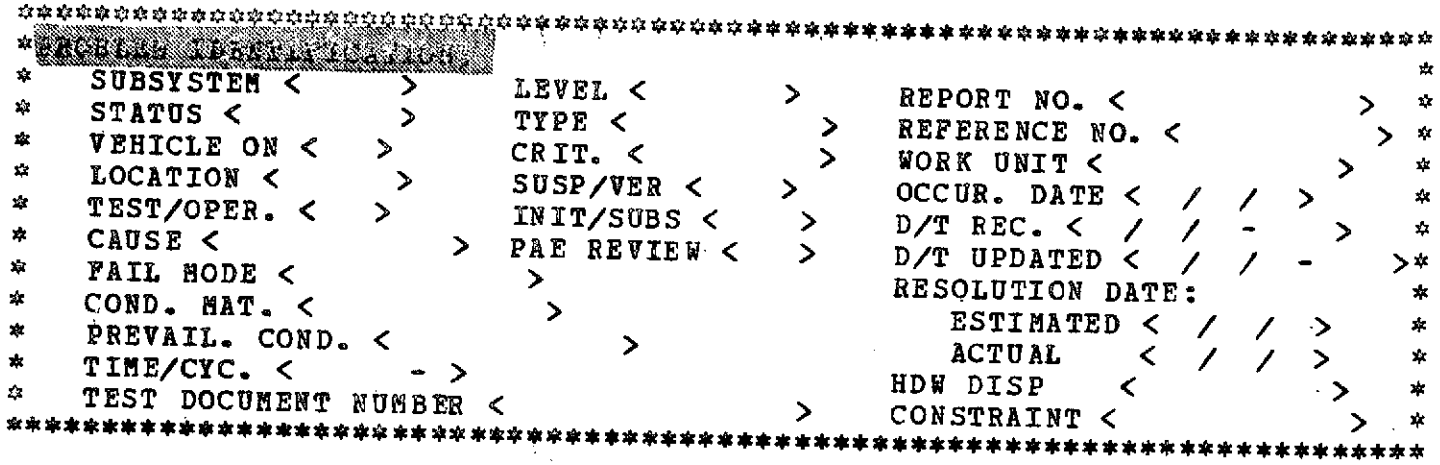
Acceptable Input:

- Value entered into data base.

Unacceptable Input:

- None.

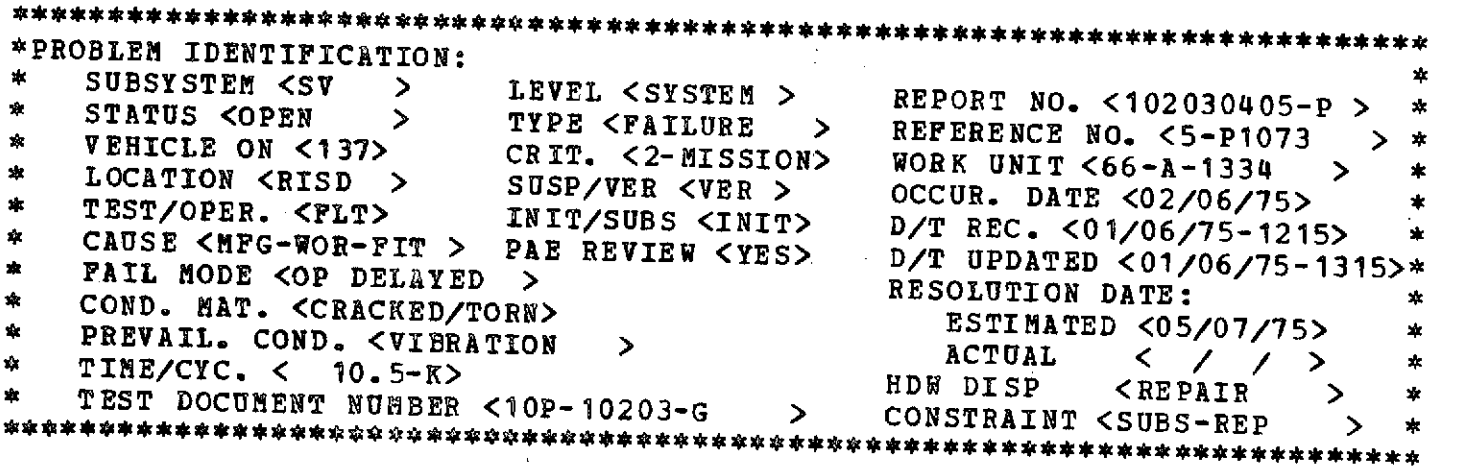
PROBLEM IDENTIFICATION DIVISION



The Problem Identification division of the JSC Shuttle Problem Display Form uniquely identifies a nonconforming article. The specific elements in this division are as depicted above and shall be individually described on succeeding pages of this section.

An example of element data to be presented in the Problem Identification division is given below.

EXAMPLE:



```
**********************************************************************************
*PROBLEM IDENTIFICATION:                                                         *
*   SUBSYSTEM <     >      LEVEL <     >      REPORT NO. <          >          *
*   STATUS <        >      TYPE <        >    REFERENCE NO. <          >       *
*   VEHICLE ON <    >      CRIT. <       >    WORK UNIT <          >           *
*   LOCATION <      >      SUSP/VER <    >    OCCUR. DATE <  /  /  >           *
*   TEST/OPER. <    >      INIT/SUBS <   >    D/T REC. <  /  /  -   >          *
*   CAUSE <         >      PAE REVIEW <  >    D/T UPDATED <  /  /  -   >       *
*   FAIL MODE <     >                         RESOLUTION DATE:                 *
*   COND. MAT. <    >                            ESTIMATED <  /  /  >          *
*   PREVAIL. COND. <    >                        ACTUAL    <  /  /  >          *
*   TIME/CYC. <     - >                     HDW DISP    <          >           *
*   TEST DOCUMENT NUMBER <          >       CONSTRAINT <          >           *
**********************************************************************************
```

Subsystem

Coded name of the project subsystem to which this problem pertains.

Char Length	Code List	Format	Search Key	Repeating Group	Required For IPR
5	Yes	AN	Yes	No	Yes

Source: Originator.

Edits Performed:

- **Checks code list for valid entry. Entry cannot be blank.**

Acceptable Input:

- **Value entered into data base.**

Unacceptable Input:

- **ADDITION:** New Problem Report will be rejected unless Originator enters a valid value for this element.
- **CHANGE:** Originator requested to submit correct value. If none submitted, element retains previous value.

CODE LIST, ORBITER SUBSYSTEMS

CODE	SSM/TM	SS TITLE
ACP	EG6/E.A.DALKE	FLIGHT COMPUTER/IOB
ACM	W.E.MALLORY	MDA & MIA EQUIPMENT
ADCD	S.G.HOUSE	MULTIFUNCTION CRT DISPLAY
ADCE	EG2/G.W.JOHNSON	DISPLAYS & CONTROLS
AEP	B. HENDRIX	ELECTRICAL POWER DISTR'N
AES	J.C.BOYKIN	ELECTRICAL SEQUENCING
AEW	L.D.WHITE	ELECTRICAL INSTA & WIRING
AFCA	EG4/D.H.SHELTON	FLIGHT CONTROL ACTUATORS
AFCE	O.P.LITTLETON	FLIGHT CONTROL ELECTRONIC
AGM	EG5/S.L.BACHMAN	GN&C INERTIAL MEAS'T UNIT
AGS	C.E.MANRY	GN&C STAR TRACKER
AH	EG9/F.A.ROTRAMEL	INSTRUMENTATION, OF
AHT	J.F.MELUGIN	TAPE RECORDER INTEGRATION
AI	EE5/N.B.FARMER	INSTRUMENTATION, DF
AKAE	EE3/H.D.CUBLEY	ANTENNA EQUIPMENT
AKN	EE6/D.S.LILLY	AEROFLT COMM & RF NAVIDS
AKRK	EE4/E.B.WALTERS	COMM EQUIPMENT - KU-BAND
AKRS	N.B.LUSE	COMM EQUIPMENT - S-BAND
CAEA	EC6/R.N.PRINCE	ECLSS ATMOSPHERIC REVITAL
CAES	R.N.PRINCE	ECLSS SMOKE DET/FIRE SUPP
CAL	J.T.BROWN	AIRLOCK
CATC	EC2/D.W.MORRIS	ACTIVE THERMAL CONTROL
CP	EC3/R.E.DREXEL	CREW PROVISIONS
CW	J.C.BRADY	WATER & WASTE MGT
ME	EW5/W.W.LOFLAND	EJECTION SEAT
MH	EW5/J.E.MCCULLOUGH	HATCHES & SEALS MECHANISM
MHDE		DOOR ET SEPARATION
MHDP		DOOR PITOT STATIC
MHDR		DOOR REACTION CONTROL SYS
MHDS		DOOR STAR TRACKER
MHDT		DOOR UMBILICAL CLOSEOUT
MHDB		DOOR PAYLOAD BAY
MD		DOCKING MECHANISM
ML	EW5/L.C.NORMAN	LANDING & DECELERATION
MP	R.D.LANGLEY	PAYLOAD MECHANICAL SYS
MS	W.F.ROGERS	ORBITER SEPARATION SYS
PEB	EP5/S.L.OWENS	BATTERIES

PROBLEM IDENTIFICATION, SUBSYSTEM (Continued)

CODE	SSM/TM	SS TITLE
PEG	S.L.OWENS	ELECTRICAL POWER GENERAT
PES	R.R.RICE	CRYOGENIC STORAGE
PHS	EP4/C.D.HAINES	HYDRAULIC SUBSYSTEM
PHAP	D.P.WEARY	AUXILIARY POWER UNIT
PP	W.H.SIMMONS	PYROTECHNICS
PRCP	W. KARAKULKO	REACTION CONTROL, PRIME
PRCV	W. KARAKULKO	REACTION CONTROL VERNIER
PROM	EP2/C.E.HUMPHRIES	ORBITAL MANEUVER SUBSYS
PRM	EP2/W.R.HAMMOCK	MAIN PROPULSION
SFF	ES2/G.W.SANDARS	STRUC FUSELAGE FWD
SFM	A.N.LEVINE	STRUC FUSELAGE MID
SFT	A.N.LEVINE	STRUC FUSELAGE AFT
SM	A.N.LEVINE	STRUC OMS/CREW MODULE
SV	S.P.WEISS	STRUC VERTICAL STABILIZER
SW	S.P.WEISS	STRUC WINGS
SX	ES3/J.A.JANNEY	STRUC PURGE, VENT & DRAIN
TC	ES3/J.T.TAYLOR	THERMAL CONTROL SYS
TPL	D.M.CURRY	THERMAL PROTECT SYS LESS
TPR	R.L.DOTTS	THERMAL PROTECT SYS RSI
XM	WT3/D. CAMP	GSE, MFG
XTF	D. CAMP	GSE, FLIGHT TEST
XTG	Z. EUBANKS	GSE, MAJOR GROUND TEST

CODE LIST, GFE

CODE	SSM/TM	SS TITLE
AKS	EE2/H.A.VANG	SIGNAL PROCESSOR
AKT	W.E.PERRY	TELEVISION
AKVA	EE2/R.W.ARMSTRONG	COMM - EXTRA VEHICULAR ACT
AKVE	C.H.STEWART	COMM - AUDIO EQUIPMENT
CAP	H.J.MCMANN	PORTABLE OXYGEN
CEMU	M.W.HORTON	EXTRA VEHICULAR MOBIL UNIT
CP	EC9/J.A.BARNETT	CREW PROVISIONS

CODE LIST, SOLID ROCKET BOOSTER

To be supplied

CODE_LIST._EXTERNAL_TANK

To be supplied

CODE_LIST._LAUNCH_AND_LANDING

To be supplied

CODE_LIST._MAIN_ENGINE

To be supplied

CODE_LIST._PAYLOADS

To be supplied

PROBLEM IDENTIFICATION, LEVEL

```
**********************************************************************************
*PROBLEM IDENTIFICATION:                                                         *
*   SUBSYSTEM <      >     LEVEL <      >      REPORT NO. <            >       *
*   STATUS <         >     TYPE <          >   REFERENCE NO. <          >      *
*   VEHICLE ON <     >     CRIT. <         >   WORK UNIT <              >      *
*   LOCATION <       >     SUSP/VER <      >   OCCUR. DATE <  /  /  >          *
*   TEST/OPER. <     >     INIT/SUBS <     >   D/T REC. <  /  /  -  >          *
*   CAUSE <              > PAE REVIEW <    >   D/T UPDATED <  /  /  -  >       *
*   FAIL MODE <           >                  RESOLUTION DATE:                  *
*   COND. MAT. <          >                     ESTIMATED <  /  /  >           *
*   PREVAIL. COND. <           >               ACTUAL    <  /  /  >           *
*   TIME/CYC. <      - >                    HDW DISP    <          >          *
*   TEST DOCUMENT NUMBER <                >   CONSTRAINT <          >          *
**********************************************************************************
```

System Level Flag (LEVEL)

Flag used to indicate that the problem is at the system or element level.

Exp Char Length	Std Char Length	Code List	Format	Search Key	Repeating Group	Required For IPR
1	7	*	A	Yes	No	No

Source: Originator or PAE.

Edits Performed:

- Checks code list for valid entry.

Acceptable Input:

- Value entered into data base.

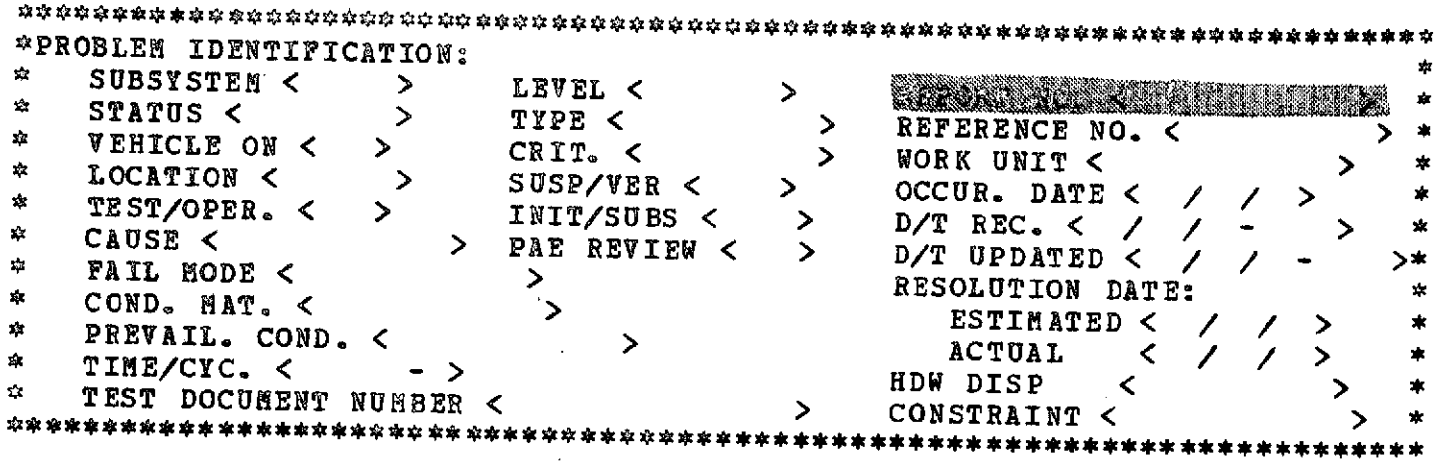
Unacceptable Input:

- ADDITION: If no value entered, element will default to "E" where project is Orbiter or GFE and to "S" for all other projects.
- CHANGE: Originator or PAE requested to submit correct value. If none submitted, element value retains old value.

* CODE VALUE, LEVEL

EXPRESS CODE	STANDARD ABBREVIATION	DEFINITION
S	SYSTEM	SYSTEM LEVEL
E	ELEMENT	ELEMENT LEVEL

PROBLEM IDENTIFICATION, PROBLEM REPORT NUMBER (REPORT NO.)



Problem Report Number (REPORT NO.)

Problem Report Number together with Project will uniquely identify each problem report in the data base. These two elements are used to provide rapid access to a problem report. This item may be changed only by deleting and adding the entire problem.

Char Length	Code List	Format	Search Key	Repeating Group	Required For IPR
12	No	AN	Yes	No	Yes

Source: Originator.

Edits Performed:

- Checks data base for duplicate problem report number within project, and element cannot be blank.

Acceptable Input:

- Value entered into data base.

Unacceptable Input:

- ADDITION: Duplicate or blank problem report number (within project) - value rejected. Originator requested to submit a unique problem report number. If none submitted, initial problem report is rejected.
- CHANGE: Value cannot be changed. Entire problem must be deleted and re-entered.

PROBLEM IDENTIFICATION, PROBLEM STATUS (STATUS)

```
*PROBLEM IDENTIFICATION:
*   SUBSYSTEM <     >      LEVEL <       >      REPORT NO. <            >  *
*   [redacted]             TYPE <          >    REFERENCE NO. <           > *
*   VEHICLE ON <    >      CRIT. <         >    WORK UNIT <             >  *
*   LOCATION <      >      SUSP/VER <      >    OCCUR. DATE <  /  /  >     *
*   TEST/OPER. <    >      INIT/SUBS <     >    D/T REC. <  /  /  -   >    *
*   CAUSE <             >  PAE REVIEW <    >    D/T UPDATED <  /  /  -  >  *
*   FAIL MODE <          >                      RESOLUTION DATE:           *
*   COND. MAT. <          >                        ESTIMATED <  /  /  >     *
*   PREVAIL. COND. <           >                   ACTUAL    <  /  /  >     *
*   TIME/CYC. <       - >                      HDW DISP    <          >     *
*   TEST DOCUMENT NUMBER <                  >   CONSTRAINT <            >  *
```

Problem Status (STATUS)

The status of this problem is logically determined by the computer based on the status of each mission or vehicle listed in the Problem Effectivity Division. Any value entered by an Originator other than by PAE will be ignored. The computer will determine the status as:

- OPEN — If one (or more) missions/vehicles statuses are OPEN, or if all missions/vehicles statuses and actual resolution date are null.
- CLOSED — If all missions/vehicles statuses are CLOSED.
- EXPL — If all missions/vehicles statuses are EXPLAINED.
- RESL — If some missions/vehicles statuses are CLOSED and the remainder are EXPLAINED.
- BLANK — If all missions/vehicles statuses are null and actual resolution date is significant.

Exp Char Length	Std Char Length	Code List	Format	Search Key	Repeating Group	Required For IPR
1	8	Yes	A	Yes	No	No

Source: Computer with PAE override.

Edits Performed if PAE overrides to reopen a problem:

- Value must be open.
- If value is changed to open, then actual resolution date must be blank, and at least one mission/vehicle status must be open or all must be blank.

Edits Performed if PAE overrides to change blank effectivity:

- Element value must be closed, explained or resolved.

PROBLEM IDENTIFICATION, PROBLEM STATUS (continued)

Acceptable Input:

- Value entered into data base.

Unacceptable Input:

- PAE requested to submit correct value. If none submitted, element value retains old value.

CODE LIST, PROBLEM STATUS

EXPRESS CODE	STANDARD ABBREVIATION	DEFINITION
O	OPEN	OPEN PROBLEM
C	CLOSED	CLOSED PROBLEM
E	EXPL	EXPLAINED PROBLEM
R	RESL	RESOLVED PROBLEM

PROBLEM IDENTIFICATION, TYPE OF NONCONFORMANCE (TYPE)

```
**********************************************************************************
*PROBLEM IDENTIFICATION:                                                         *
*   SUBSYSTEM <     >     LEVEL <          >     REPORT NO. <            >     *
*   STATUS <        >     [redacted]             REFERENCE NO. <         >     *
*   VEHICLE ON <    >     CRIT. <          >     WORK UNIT <             >     *
*   LOCATION <      >     SUSP/VER <       >     OCCUR. DATE <  /  /  >         *
*   TEST/OPER. <    >     INIT/SUBS <      >     D/T REC. <  /  /  -  >         *
*   CAUSE <             > PAE REVIEW <     >,    D/T UPDATED <  /  /  -  >      *
*   FAIL MODE <          >                       RESOLUTION DATE:               *
*   COND. MAT. <          >                        ESTIMATED <  /  /  >         *
*   PREVAIL. COND. <           >                  ACTUAL    <  /  /  >         *
*   TIME/CYC. <      - >                         HDW DISP    <          >      *
*   TEST DOCUMENT NUMBER <                  >     CONSTRAINT <           >      *
**********************************************************************************
```

Type

Code used to indicate the type of the nonconformance - failure or unsatisfactory condition.

Exp Char Length	Std Char Length	Code List	Format	Search Key	Repeating Group	Required For IPR
1	10	*	A	No	No	No

Source: Originator.

Edits Performed:

- Checks code list for valid entry or blank.

Acceptable Input:

- Value entered into data base.

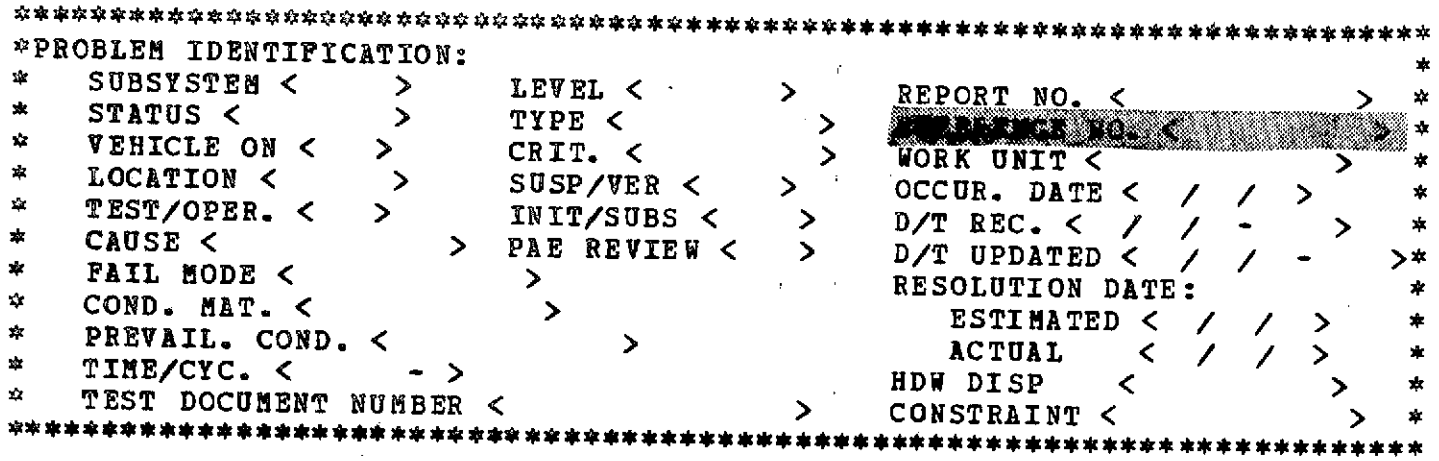
Unacceptable Input:

- Invalid element value - value rejected. Originator requested to submit correct value. If none submitted, element value retains old value.

* CODE VALUE

EXPRESS CODE	STANDARD ABBREVIATION	DEFINITION
F	FAILURE	FAILURE
U	UNSAT-COND	UNSATISFACTORY CONDITION

PROBLEM IDENTIFICATION, REFERENCE NUMBER (REFERENCE NO.)



Reference Number (REFERENCE NO.)

This field allows referencing of the problem report by a number other than the problem report number. For example, the Problem Action Center (PAC) number may be stored in this element.

Char Length	Code List	Format	Search Key	Repeating Group	Required For IPR
10	No	AN	No	No	No

Source: Originator.

Edits Performed:

- No edits performed on the value entered for this element. System will accept any value entered by Originator up to the maximum character length.

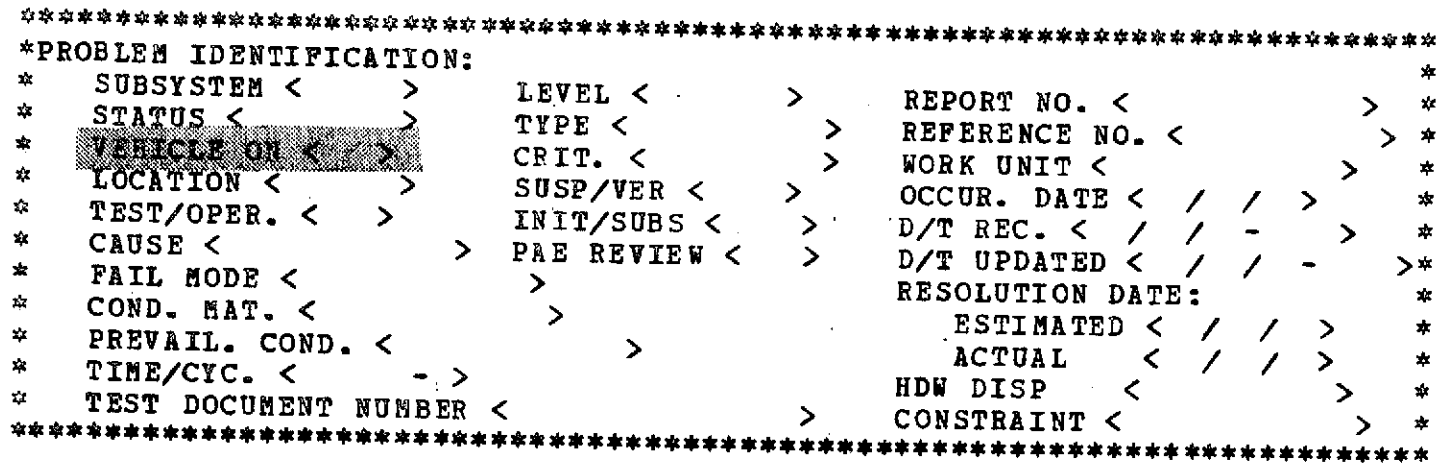
Acceptable Input:

- Value entered into data base.

Unacceptable Input:

- None.

PROBLEM IDENTIFICATION, VEHICLE NUMBER (VEHICLE ON)



Vehicle (VEHICLE ON)

Number of the vehicle on which the problem hardware is installed.

Char Length	Code List	Format	Search Key	Repeating Group	Required For IPR
3	No	AN	No	No	No

Source: Originator.

Edits Performed:

- No edits performed on the value for this element. System will accept any value entered by Originator up to the maximum character length.

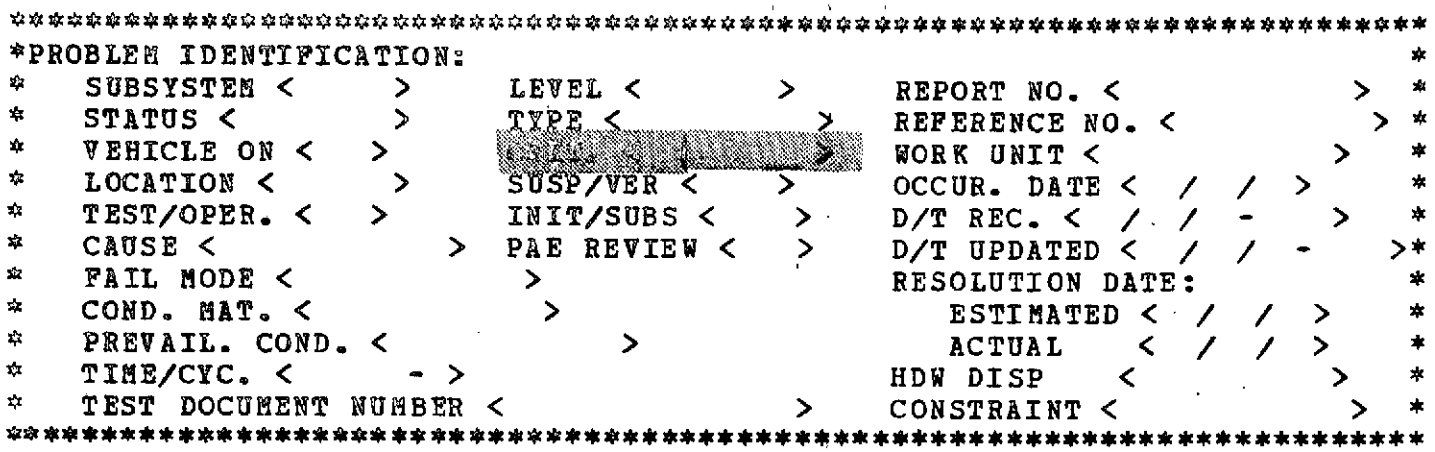
Acceptable Input:

- Value entered into data base.

Unacceptable Input:

- None.

PROBLEM IDENTIFICATION, CRITICALITY OF RECURRENCE (CRIT.)



Criticality (CRIT.)

Code indicating what a recurrence of this problem could cause.

Exp Char Length	Std Char Length	Code List	Format	Search Key	Repeating Group	Required For IPR
1	9	Yes	AN	No	No	No

Source: Originator or PAE.

Edits Performed:

- Checks code list for valid entry or blank.

Acceptable Input:

- Value entered into data base.

Unacceptable Input:

- Invalid element value - value rejected. Originator or PAE requested to submit correct value. If none submitted, element value retains old value.

CODE LIST, CRITICALITY OF RECURRENCE

EXPRESS CODE	STANDARD ABBREVIATION	DEFINITION
1	1-SAFETY	LOSS OF LIFE OR VEHICLE
2	2-MISSION	LOSS OF MISSION
3	3-OTHER	ALL OTHERS

PROBLEM IDENTIFICATION, WORK UNIT

```
**********************************************************************************
*PROBLEM IDENTIFICATION:                                                         *
*   SUBSYSTEM <     >     LEVEL <       >     REPORT NO. <            >        *
*   STATUS <        >     TYPE <          >   REFERENCE NO. <            >      *
*   VEHICLE ON <   >      CRIT. <         >   WORK UNIT <                >      *
*   LOCATION <      >     SUSP/VER <     >    OCCUR. DATE <  /  /  >            *
*   TEST/OPER. <   >      INIT/SUBS <    >    D/T REC. <  /  /  -    >          *
*   CAUSE <            >  PAE REVIEW <   >    D/T UPDATED <  /  /  -    >      *
*   FAIL MODE <         >                    RESOLUTION DATE:                   *
*   COND. MAT. <         >                     ESTIMATED <  /  /  >             *
*   PREVAIL. COND. <          >                ACTUAL    <  /  /  >             *
*   TIME/CYC. <      - >                     HDW DISP    <          >           *
*   TEST DOCUMENT NUMBER <                >   CONSTRAINT <            >        *
**********************************************************************************
```

WORK UNIT

This optional field contains identifiers on the specific assembly or functional part located within a major system. Entry values are to be developed in accordance with JSC-SL-T-008, SPACE SHUTTLE PROGRAM - PREPARATION OF SPACE SHUTTLE WORK UNIT CODES MANUAL.

Char Length	Code List	Format	Search Key	Repeating Group	Required For IPR
12	No	AN	No	No	No

Source: Originator.

Edits Performed:

- No edits required for this element. System will accept any value entered up to maximum character length.

Acceptable Input:

Value entered into the data base.

Unacceptable Input:

- None.

PROBLEM IDENTIFICATION, LOCATION OF ARTICLE (LOCATION)

```
**********************************************************************************
*PROBLEM IDENTIFICATION:                                                         *
*   SUBSYSTEM <      >     LEVEL <        >     REPORT NO. <              >  *
*   STATUS <         >     TYPE <           >   REFERENCE NO. <             >  *
*   VEHICLE ON <     >     CRIT. <          >   WORK UNIT <                 >  *
*   LOCATION <       >     SUSP/VER <       >   OCCUR. DATE <  /  /  >        *
*   TEST/OPER. <     >     INIT/SUBS <      >   D/T REC. <  /  /  -    >     *
*   CAUSE <              > PAE REVIEW <     >   D/T UPDATED <  /  /  -    >*
*   FAIL MODE <           >                    RESOLUTION DATE:              *
*   COND. MAT. <           >                      ESTIMATED <  /  /  >       *
*   PREVAIL. COND. <            >               ACTUAL    <  /  /  >       *
*   TIME/CYC. <       - >                     HDW DISP    <            >     *
*   TEST DOCUMENT NUMBER <                  >   CONSTRAINT <              >  *
**********************************************************************************
```

Location of Article at Time of Occurrence (LOCATION)

Abbreviations of the facility or site location of the reporting agency.

Char Length	Code List	Format	Search Key	Repeating Group	Required For IPR
6	Yes	AN	No	No	Yes

Source: Originator.

Edits Performed:

- Checks code list for valid entry. Value cannot be blank.

Acceptable Input:

- Value entered into data base.

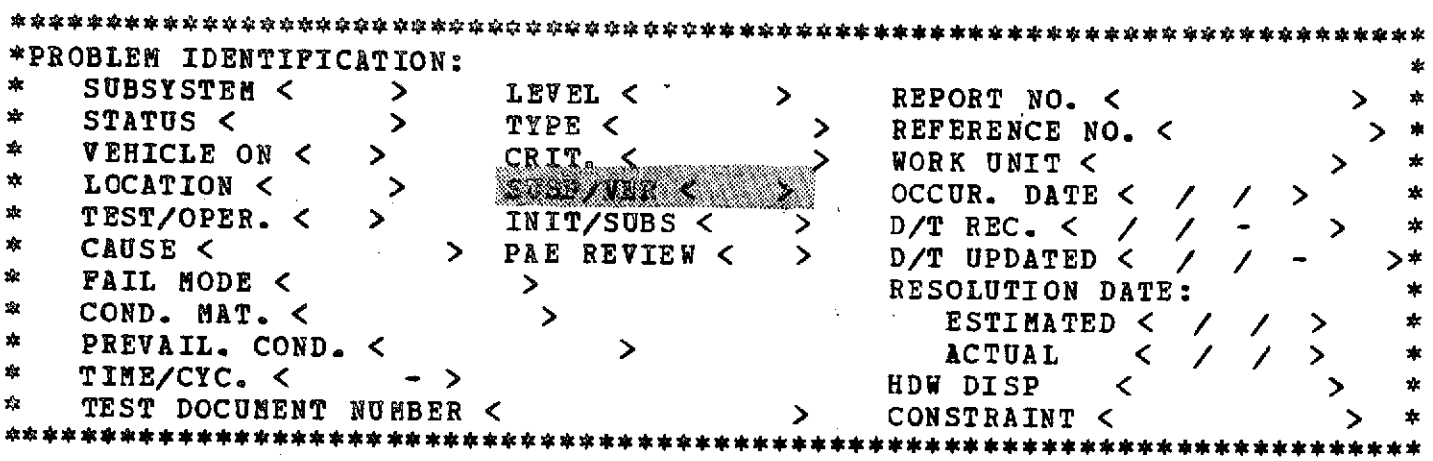
Unacceptable Input:

- ADDITION: New Problem Report will be rejected unless Originator enters a valid value for this element.
- CHANGE: Originator requested to submit correct value. If none submitted, element retains previous value.

CODE LIST - ORGANIZATIONS

CODE	DEFINITION
RISD	ROCKWELL INTL. SPACE DIV.
MDAC	MCDONNELL DOUGLASS
JSC	JOHNSON SC
MSFC	MARSHAL SFC
KSC	KENNEDY SC
AIRFOR	USAF PALMDALE

PROBLEM IDENTIFICATION, SUSPECT/VERIFIED (SUSP/VER)



Suspect/Verified (SUSP/VER)

A flag used to indicate whether a problem report is classified as suspect problem or verified problem.

Exp Char Length	Std Char Length	Code List	Format	Search Key	Repeating Group	Required For IPR
1	4	*	A	Yes	No	No

Source: Originator.

Edits Performed:

- Checks code list for valid entry. If problem status is closed, explained or resolved then problem must be verified.

Acceptable Input:

- Value entered into data base.

Unacceptable Input:

- ADDITION: Originator requested to submit correct value. If none submitted, element will default to suspect "S" if status is open and to verified "V" if status is closed "C", explained "E", or resolved "R".
- CHANGE: INVALID element value - value rejected and element retains previous value. Users other than PAE may only change element value from suspect to verified. PAE may change element value either way. If PAE changes from verified to suspect then problem status must be open.

PROBLEM IDENTIFICATION, SUSPECT/VERIFIED (Continued)

* CODE VALUE

EXPRESS CODE	STANDARD ABBREVIATION	DEFINITION
S	SUSP	SUSPECT
V	VER	VERIFIED

PROBLEM IDENTIFICATION, DATE PROBLEM DETECTED (OCCUR. DATE)

```
**********************************************************************************
*PROBLEM IDENTIFICATION:                                                         *
*   SUBSYSTEM <     >     LEVEL <       >     REPORT NO. <            >       *
*   STATUS <        >     TYPE <          >   REFERENCE NO. <          >       *
*   VEHICLE ON <   >      CRIT. <         >   WORK UNIT <              >       *
*   LOCATION <      >     SUSP/VER <     >     OCCUR. DATE <  /  /  >          *
*   TEST/OPER. <   >      INIT/SUBS <    >     D/T REC. <  /  /  -  >          *
*   CAUSE <            >  PAE REVIEW <   >     D/T UPDATED <  /  /  -  >       *
*   FAIL MODE <         >                     RESOLUTION DATE:                 *
*   COND. MAT. <         >                       ESTIMATED <  /  /  >          *
*   PREVAIL. COND. <          >                  ACTUAL    <  /  /  >          *
*   TIME/CYC. <      - >                      HDW DISP    <          >         *
*   TEST DOCUMENT NUMBER <                  >  CONSTRAINT <            >       *
**********************************************************************************
```

Date of Problem Occurrence (OCCUR. DATE)

The date the problem was detected.

Char Length	Code List	Format	Search Key	Repeating Group	Required For IPR
8	No	AN	No	No	Yes

Source: Originator.

Edits Performed:

- Checks element value for proper date format. Format is MM/DD/YY. Element value cannot be blank.

Acceptable Input:

- Value entered into data base.

Unacceptable Input:

- ADDITION: New Problem Report will be rejected unless Originator enters a value for this element.
- CHANGE: Originator requested to submit correct value. If none submitted, element retains previous value.

PROBLEM IDENTIFICATION, TEST/OPERATION (TEST/OPER.)

```
**************************************************************************
*PROBLEM IDENTIFICATION:                                                 *
*   SUBSYSTEM <      >     LEVEL <        >     REPORT NO. <            > *
*   STATUS <         >     TYPE <           >   REFERENCE NO. <           > *
*   VEHICLE ON <     >     CRIT. <          >   WORK UNIT <             >  *
*   LOCATION <       >     SUSP/VER <       >   OCCUR. DATE <  /  /  >      *
*   TEST/OPER. <     >     INIT/SUBS <      >   D/T REC. <  /  /  -    >   *
*   CAUSE <              > PAE REVIEW <     >   D/T UPDATED <  /  /  -    >*
*   FAIL MODE <           >                    RESOLUTION DATE:            *
*   COND. MAT. <           >                     ESTIMATED <  /  /  >     *
*   PREVAIL. COND. <            >                ACTUAL    <  /  /  >     *
*   TIME/CYC. <       - >                      HDW DISP    <           >   *
*   TEST DOCUMENT NUMBER <                  >    CONSTRAINT <            >  *
**************************************************************************
```

Test/Operation (TEST/OPER)

Test or operation being performed at the time of problem occurrence.

Exp Char Length	Std Char Length	Code List	Format	Search Key	Repeating Group	Required For IPR
1	3	Yes	AN	No	No	Yes

Source: Originator.

Edits Performed:

- Element value cannot be blank.
- Checks code list for valid entry.

Acceptable Input:

- Value entered into data base.

Unacceptable Input:

- ADDITION: Initial Problem Report will be rejected unless Originator enters a value for this element.
- CHANGE: Originator requested to submit correct value. If none submitted, element retains previous value.

CODE LIST, TEST/INSPECTION/OPERATING PROCEDURE/EVENT

EXPRESS CODE	STANDARD ABBREVIATION	DEFINITION
0	DVT	DESIGN DEVELOPMENT TEST
1	QAL	DESIGN CERTIFICATION/QUALIFICATION
2	MFG	PRE-ATP PART/COMPONENT PRODUCTION CHECK
3	ATP	ACCEPTANCE
4	PIT	PRE-INSTALLATION (IN END ITEM/SC) HARDWARE CHECKOUT
5	ASY	SPACECRAFT ASSEMBLY-HARDWARE INSTALLATION
6	CKO	SPACECRAFT/GSE SYSTEMS CHECKOUT
7	CTD	PRE-FLIGHT/LAUNCH PREPARATION
8	FLT	FLIGHT, INCLUDING LAUNCH & LANDING
9	PFT	POST-FLIGHT EVALUATION/REMOVAL

PROBLEM IDENTIFICATION, INITIAL/SUBSEQUENT (INIT/SUBS)

```
**********************************************************************************
*PROBLEM IDENTIFICATION:                                                         *
*   SUBSYSTEM <     >     LEVEL <       >     REPORT NO. <            >       *
*   STATUS <        >     TYPE <          >   REFERENCE NO. <          >       *
*   VEHICLE ON <    >     CRIT. <         >   WORK UNIT <              >       *
*   LOCATION <      >     SUSP/VER <      >   OCCUR. DATE <  /  /  >           *
*   TEST/OPER. <    >     INIT/SUBS <     >   D/T REC. <  /  /  -    >        *
*   CAUSE <             > PAE REVIEW <    >   D/T UPDATED <  /  /  -    >     *
*   FAIL MODE <          >                   RESOLUTION DATE:                  *
*   COND. MAT. <          >                     ESTIMATED <  /  /  >           *
*   PREVAIL. COND. <           >               ACTUAL    <  /  /  >           *
*   TIME/CYC. <      - >                     HDW DISP    <          >         *
*   TEST DOCUMENT NUMBER <                 >  CONSTRAINT <            >       *
**********************************************************************************
```

Initial/Subsequent (INIT/SUBS)

Flag used to indicate what report is being submitted, a new problem report (INIT) or subsequent information for an existing report (SUBS).

Exp Char Length	Std Char Length	Code List	Format	Search Key	Repeating Group	Required For IPR
1	4	*	A	No	No	No

Source: Originator or PAE.

Edits Performed:

- Checks code list for valid entry.

Acceptable Input:

- Value entered into data base.

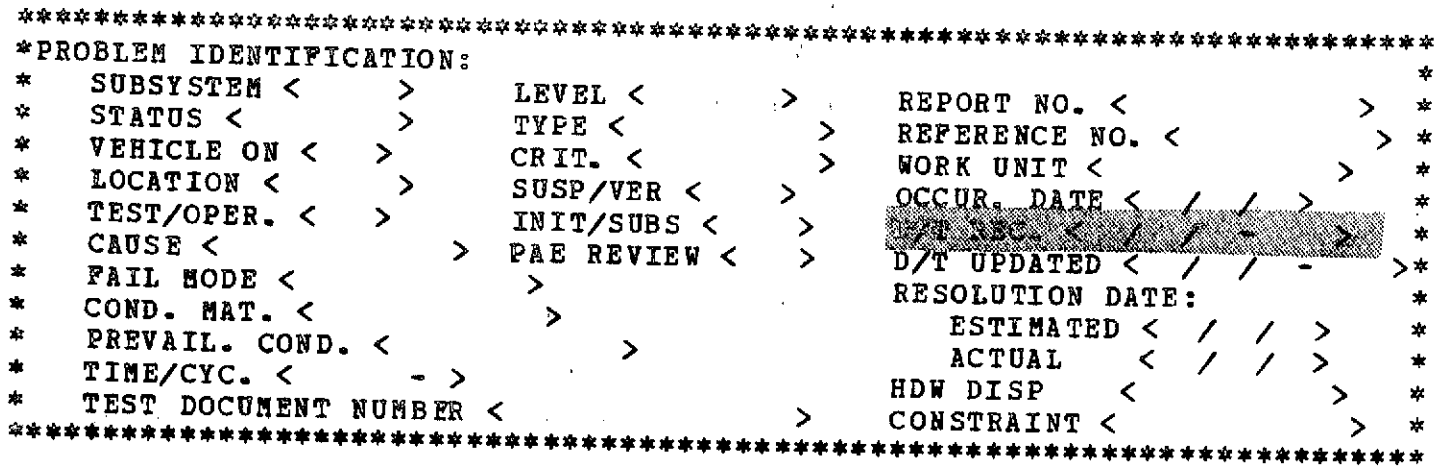
Unacceptable Input:

- ADDITION: Element value will default to "I" initial if no value entered.
- CHANGE: Originator or PAE requested to submit correct value. If none submitted, element retains previous value.

* CODE LIST, INITIAL/SUBSEQUENT

EXPRESS CODE	STANDARD ABBREVIATION	DEFINITION
I	INIT	INITIAL PROBLEM INFORMATION
S	SUBS	SUBSEQUENT PROBLEM INFORMATION

PROBLEM IDENTIFICATION, DATE/TIME REPORT RECEIVED (D/T REC.)



Date/Time Report Received (D/T REC.) (displayed in background mode)

The computer will supply the date and time the problem report was received. Any value entered by an Originator for this element will be ignored.

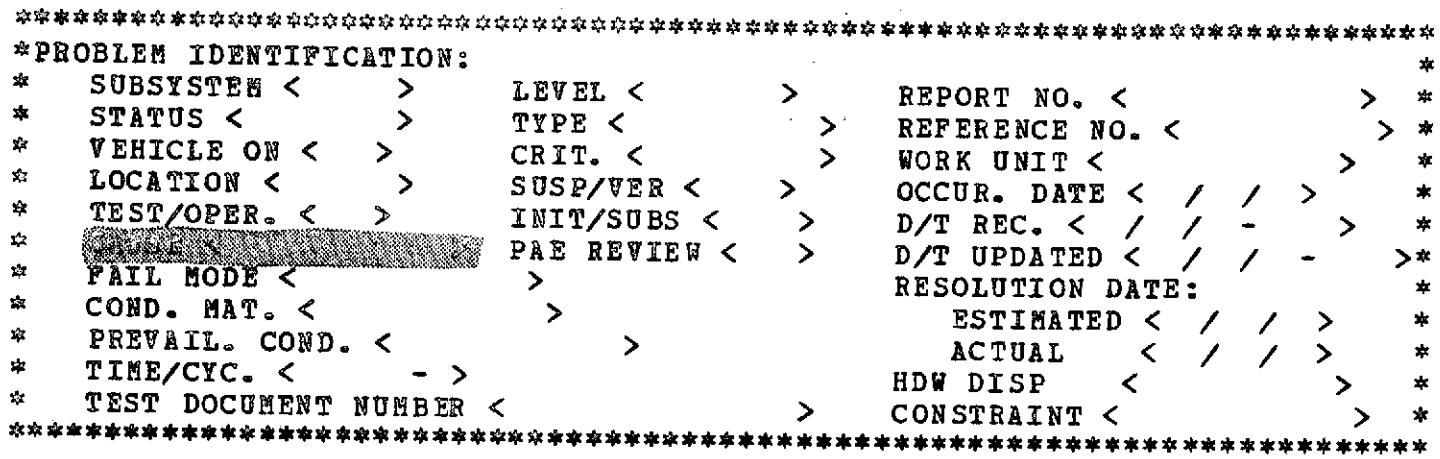
Char Length	Code List	Format	Search Key	Repeating Group	Required For IPR
13	No	AN	Yes	No	No

Source: Computer.

Edits Performed:

- None.

PROBLEM IDENTIFICATION, CAUSE OF PROBLEM (CAUSE)



Cause of Problem (CAUSE)

Problem cause or origin of the problem.

Exp Char Length	Std Char Length	Code List	Format	Search Key	Repeating Group	Required For IPR
3	12	Yes	A	No	No	No

Source: Originator.

Edits Performed:

- Checks code list for valid entry or blank.

Acceptable Input:

- Value entered into data base.

Unacceptable Input:

- Invalid element value - value rejected. Originator requested to submit correct value. If none submitted, element retains previous value.

CODE LIST, PROBLEM CAUSE - The following three components must be identified to specify the problem cause:

EXPRESS CODE	STANDARD ABBREVIATION	DEFINITION
		ORIENTATION (FIRST CHARACTER OF CODE) THE PROBLEM AROSE PRIMARILY FROM A DEFICIENCY/ERROR IN THE:
D--	DES - -	DESIGN - REQUIREMENT GOVERNING THE SPECIFICATION OF HARDWARE DESIGN; OR THE IMPLEMENTING SPECIFICATION/DRAWING
L--	LOG - -	LOGISTICAL PROCESS - MAINTENANCE, SHIPPING OR STORAGE
M--	MFG - -	MANUFACTURING PROCESS - FABRICATION OR ASSEMBLY
T--	USE - -	VERIFICATION PROCESS - TEST OR OPERATIONAL USE
		FORMAL SOURCE (SECOND CHARACTER OF CODE) WAS A DEFICIENCY/ERROR IN:
-R-	- REQ -	REQUIREMENT - DOCUMENTED DEFINITION OF A REQUIREMENT
-W-	- WOR -	WORKMANSHIP - HANDLING OR WORKMANSHIP
		MATERIAL SOURCE (THIRD CHARACTER OF CODE) WAS A DEFICIENCY/ERROR PERTAINING TO:
--E	- - ENVR	ENVIRONMENT (PREVALENT CHEMICAL/PHYSICAL CONDITIONS) OR STORAGE
--F	- - FIT	FIT/INTERFACE OF ITEMS; OR PACKAGING/TRANSPORTATION
--H	- - HDW	HARDWARE (MATERIAL OR PART) AGE, LIFE OR TYPE
--P	- - PROC	PROCEDURE/PROCESS (MANNER, METHOD OR STEPS) OR MAINTENANCE

PROBLEM IDENTIFICATION, PAE REVIEW

```
**********************************************************************************
*PROBLEM IDENTIFICATION:                                                         *
*   SUBSYSTEM <      >     LEVEL <        >     REPORT NO. <              >    *
*   STATUS <         >     TYPE <           >   REFERENCE NO. <            >    *
*   VEHICLE ON <    >      CRIT. <          >   WORK UNIT <                >    *
*   LOCATION <       >     SUSP/VER <      >    OCCUR. DATE <  /  /  >         *
*   TEST/OPER. <    >      INIT/SUBS <      >   D/T REC. <  /  /  -     >      *
*   CAUSE <              > PAE REVIEW <    >    D/T UPDATED <  /  /  -     >   *
*   FAIL MODE <           >                    RESOLUTION DATE:                *
*   COND. MAT. <           >                     ESTIMATED <  /  /  >         *
*   PREVAIL. COND. <            >                ACTUAL    <  /  /  >         *
*   TIME/CYC. <      - >                       HDW DISP    <           >      *
*   TEST DOCUMENT NUMBER <                  >   CONSTRAINT <             >     *
**********************************************************************************
```

PAE REVIEW

This field denotes review flag as input by the PAE. Value will be "NO" until changed by PAE.

Exp Char Length	Std Char Length	Code List	Format	Search Key	Repeating Group	Required For IPR
1	3	*	A	Yes	No	No

Source: PAE.

Edits Performed:

- Checks code list for valid entry.

Acceptable Input:

- Value entered in data base.

Unacceptable Input:

- ADDITION: Will default to "No" unless PAE enters "Yes".
- CHANGE: PAE may input either "Yes" or "No".

*_CODE_VALUE,_PAE_REVIEW

EXPRESS CODE	STANDARD ABBREVIATION	DEFINITION
Y	YES	YES, PAE HAS REVIEWED
N	NO	NO, PAE HAS NOT REVIEWED

PROBLEM IDENTIFICATION, DATE/TIME OF LAST UPDATE (D/T UPDATED)

```
**********************************************************************************
*PROBLEM IDENTIFICATION:                                                         *
*   SUBSYSTEM <      >     LEVEL <        >     REPORT NO. <              >    *
*   STATUS <         >     TYPE <           >   REFERENCE NO. <             >   *
*   VEHICLE ON <     >     CRIT. <          >   WORK UNIT <                 >    *
*   LOCATION <       >     SUSP/VER <       >   OCCUR. DATE <  /  /  >           *
*   TEST/OPER. <     >     INIT/SUBS <      >   D/T REC. <  /  /  -    >        *
*   CAUSE <              > PAE REVIEW <     >   D/T UPDATED <  /  /  -    >     *
*   FAIL MODE <          >                      RESOLUTION DATE:                *
*   COND. MAT. <         >                         ESTIMATED <  /  /  >         *
*   PREVAIL. COND. <         >                     ACTUAL    <  /  /  >         *
*   TIME/CYC. <      - >                       HDW DISP    <           >        *
*   TEST DOCUMENT NUMBER <                   >  CONSTRAINT <           >        *
**********************************************************************************
```

Date/Time of Last Transaction (D/T UPDATED) (displayed in background mode)

The computer will supply the date and time for each update transaction. Any value entered by an Originator for this element will be ignored. Date/Time Updated will be the same as Date/Time Received until an update is entered.

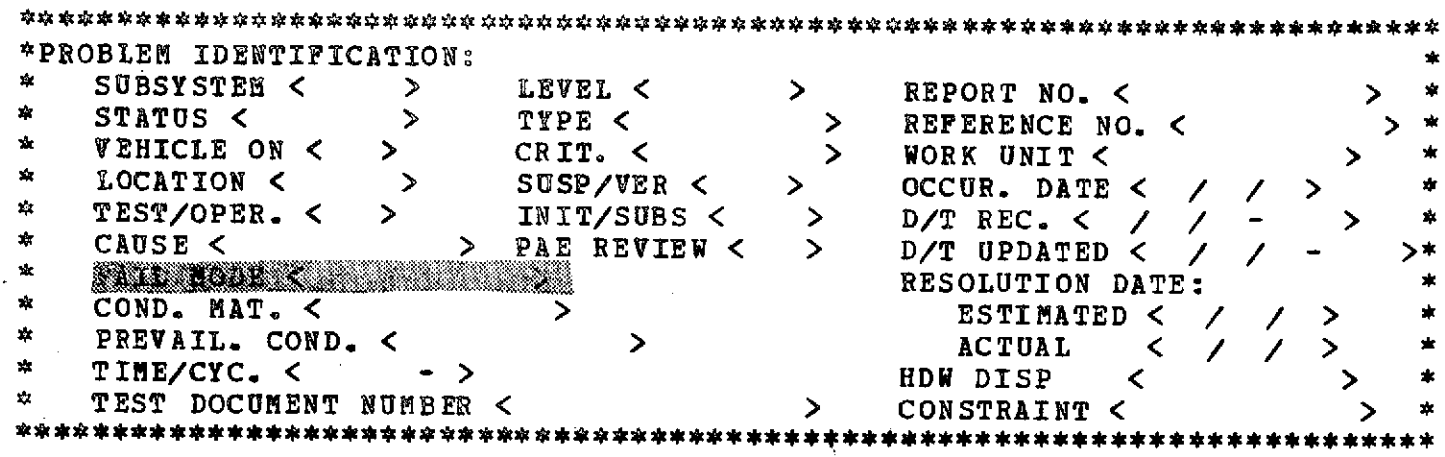
Char Length	Code List	Format	Search Key	Repeating Group	Required For IPR
13	No	AN	No	No	No

Source: Computer.

Edits Performed:

- None.

PROBLEM IDENTIFICATION, FAILURE MODE



Failure Mode (FAIL MODE)

Code used to describe the failure mode of the functional operation.

Exp Char Length	Std Char Length	Code List	Format	Search Key	Repeating Group	Required For IPR
2	12	Yes	A	No	No	No

Source: Originator or PAE.

Edits Performed:

- Checks code list for valid entry or blank.

Acceptable Input:

- Value entered into data base.

Unacceptable Input:

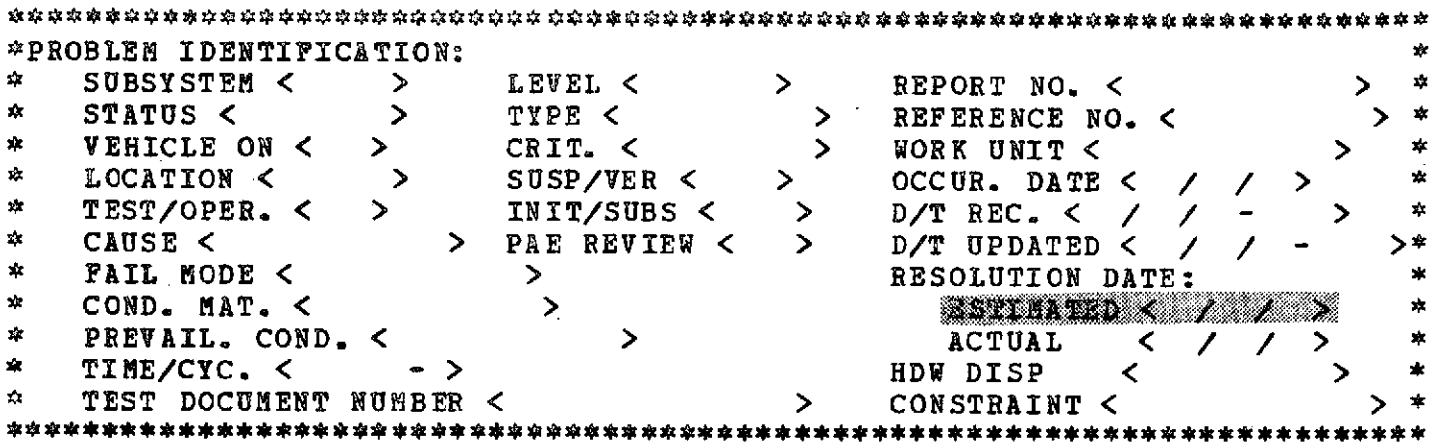
- Invalid element value - value rejected. Originator or PAE requested to submit correct value. If none submitted, element retains previous value.

PROBLEM IDENTIFICATION, FAILURE MODE (Continued)

CODE LIST, FAILURE MODE (SYMPTOM - FUNCTIONAL CONDITION)

EXPRESS CODE	STANDARD ABBREVIATION	DEFINITION
EM	EMI	ELECTROMAGNETIC INTERFERENCE
FC	FAILS CLOSED	FAILS CLOSED/FAILS TO OPEN
FF	FAILS OFF	FAILS OFF/FAILS TO FIRE/OPERATE/START/ NO OUTPUT
FN	FAILS ON	FAILS ON/FAILS TO STOP
FP	FAILS OPEN	FAILS OPEN/FAILS TO CLOSE/MATE
FS	FAILS SHORT	FAILS SHORT, ELECTRICAL CIRCUIT
LE	LEAKS EXT	LEAKS EXTERNALLY
LN	LEAKS INT	LEAKS INTERNALLY
PD	OP DELAYED	OPERATION DELAYED
PE	OP EARLY	OPERATION EARLY/INADVERTENT/PREMATURE
PF	OP ERRATIC	OPERATION ERRATIC/FLUCTUATING/INTERMITTENT
TF	OUTPUT FALSE	OUTPUT SPURIOUS/DISPLAY/INDICATION FALSE
TH	OUTPUT HIGH	OUTPUT HIGH/SPIKED/FLOW EXCESSIVE

PROBLEM IDENTIFICATION, RESOLUTION DATE (ESTIMATED)



Estimated Resolution Date (ESTIMATED)

Date on which resolution can be expected. Planned date of resolution.

Char Length	Code List	Format	Search Key	Repeating Group	Required For IPR
8	No	AN	No	No	No

Source: Originator.

Edits Performed:

- Checks element value for proper date value and format. Format is MM/DD/YY.

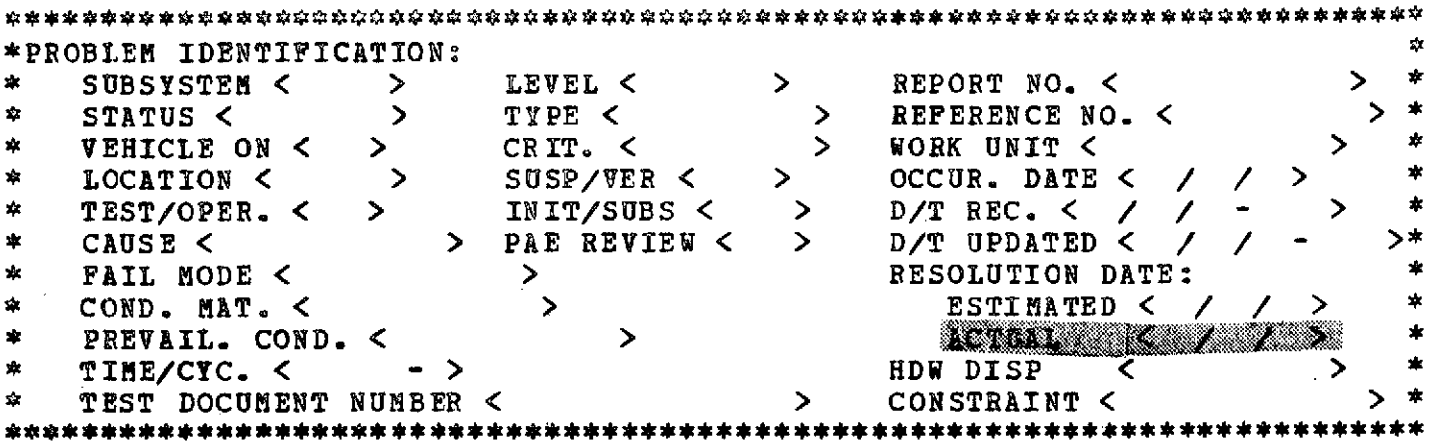
Acceptable Input:

- Value entered into data base.

Unacceptable Input:

- Invalid element value - value rejected. Originator requested to submit correct value. If none submitted, element retains previous value.

PROBLEM IDENTIFICATION, RESOLUTION DATE (ACTUAL)



Actual Resolution Date (ACTUAL)

Date input by PAE for total resolution of the problem. Any value entered by an Originator other than PAE for this element will be ignored.

Char Length	Code List	Format	Search Key	Repeating Group	Required For IPR
8	No	DATE	Yes	No	No

Source: PAE.

Edits Performed:

- Checks element value for proper date value and format or blank. Format is MM/DD/YY.
- Checks problem status for closed, explained or resolved. If problem status not one of these three, input is rejected.
- If PAE reopens a closed problem, actual resolution date must be blank, status must be open and at least one mission effectivity must be open.

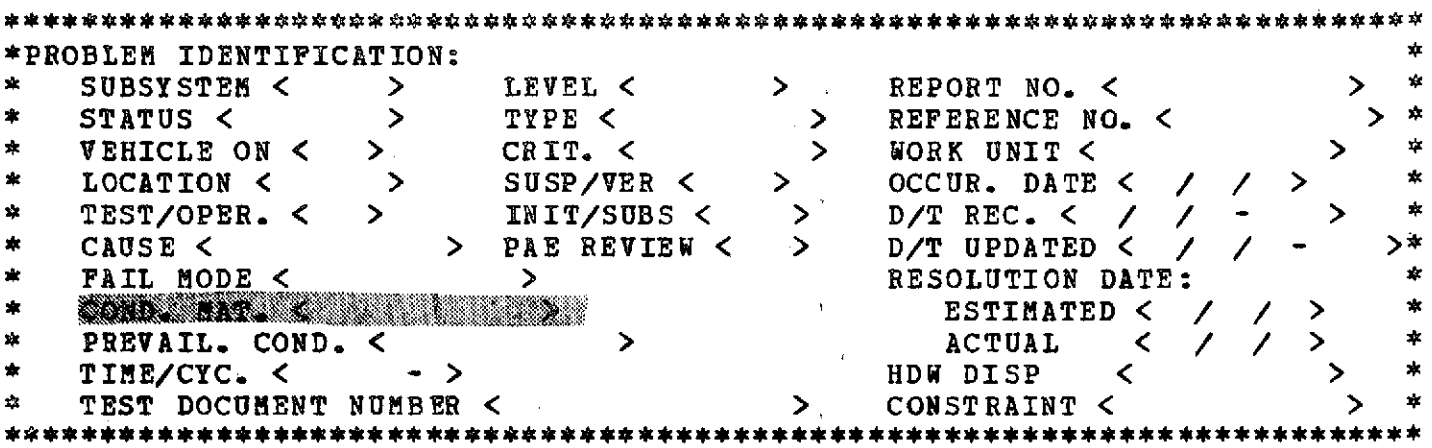
Acceptable Input:

- Value entered into data base.

Unacceptable Input:

- Invalid element value - value rejected. PAE requested to submit correct value. If none submitted, element retains previous value.

PROBLEM IDENTIFICATION, CONDITION OF MATERIAL (COND. MAT.)



Condition of Problem Material (COND. MAT.)

The condition of the nonconforming material.

Exp Char Length	Std Char Length	Code List	Format	Search Key	Repeating Group	Required For IPR
2	12	Yes	A	No	No	No

Source: Originator.

Edits Performed:

- Checks code list for valid entry or blank.

Acceptable Input:

- Value entered into data base.

Unacceptable Input:

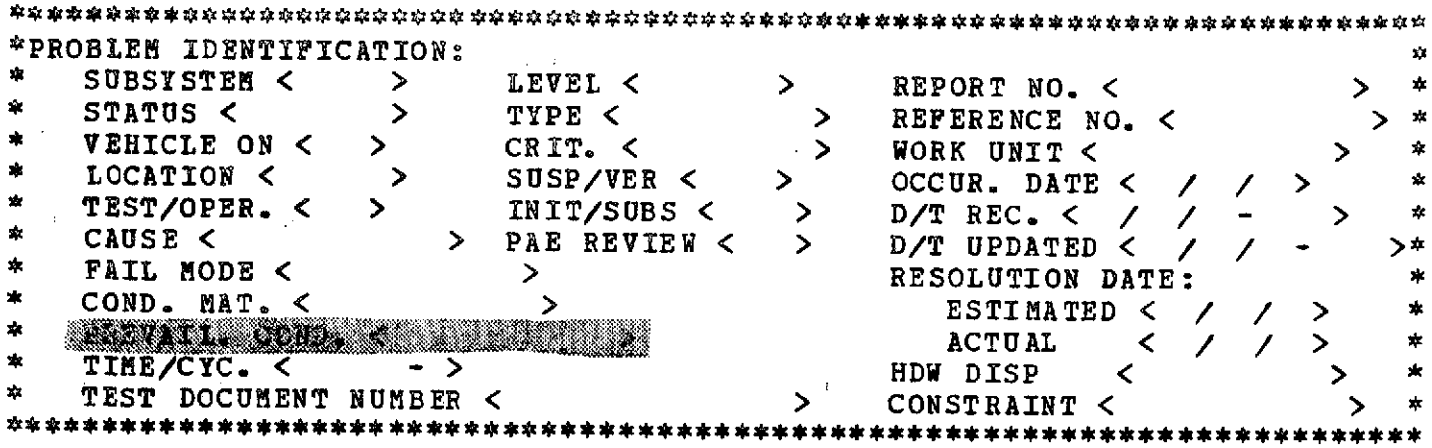
- Invalid element value - value rejected. Originator requested to submit correct value. If none submitted, element retains previous value.

PROBLEM IDENTIFICATION, CONDITION OF MATERIAL (Continued)

CODE LIST, CONDITION OF PROBLEM MATERIAL

EXPRESS CODE	STANDARD ABBREVIATION	DEFINITION
CA	COATING BAD	COATING - LACQUER/PAINT/PRESERVATIVE PROBLEM
CB	LUBE BAD	COATING - LUBRICANT PROBLEM
CC	SEALANT BAD	COATING - POTTING/SEALANT PROBLEM
CF	WETTED	CONTAMINATED WITH FLUID/WET
CG	DIRTY	CONTAMINATED WITH PARTICLES/DIRTY
CH	CORRODED	CORRODED/RUSTY
DA	ROUGHENED	DAMAGED - ABRAIDED/GOUGED/ROUGHENED/ SCRATCHED
DB	BENT	DAMAGED - BENT/TWISTED
DC	CRACKED/TORN	DAMAGED - CRACKED/CUT/FRACTURED/TORN
DE	BURST	DAMAGED - BURST/PUNCTURED/SHATTERED
DM	MELTED	DAMAGED - MELTED/SCORCHED
DR	DETERIORATED	DETERIORATED BY AGE/RADIATION
DW	WORN	DETERIORATED BY WEAR
JC	CRIMP BAD	JOINT, CRIMP, DEFECTIVE
JS	SOLDER BAD	JOINT, SOLDER, DEFECTIVE
JW	WELD BAD	JOINT, WELD, DEFECTIVE
MC	MISADJUSTED	MISADJUSTED/MISCALIBRATED
MF	MISFIT	MISFIT (NOT DAMAGED/WORN)
ML	MISLOCATED	MISLOCATED (OR MISSING) ITEM(S)
MP	WRONG ITEM	MATERIAL/PART NOT OF TYPE SPECIFIED
WE	OVERWEIGHT	WEIGHT EXCESSIVE/TOO THICK
XX	UNDETERMINED	UNDETERMINED
WU	UNDERWEIGHT	WEIGHT INADEQUATE/TOO THIN

PROBLEM IDENTIFICATION, PREVALENT CONDITIONS (PREVAIL. COND.)



Prevalent Conditions (PREVAIL. COND.)

Coded description of the prevalent condition at the time of occurrence.

Exp Char Length	Std Char Length	Code List	Format	Search Key	Repeating Group	Required For IPR
2	12	Yes	A	No	No	Yes

Source: Originator.

Edits Performed:

- Element value cannot be blank.
- Checks code list for valid entry.

Acceptable Input:

- Value entered into data base.

Unacceptable Input:

- ADDITION: New Problem Report will be rejected unless Originator enters a value for this element.
- CHANGE: Originator requested to submit correct value. If none submitted, element retains previous value.

CODE LIST, PREVALENT CONDITIONS/ACTIVITY AT TIME OF OCCURRENCE

EXPRESS CODE	STANDARD ABBREVIATION	DEFINITION
CE	EMC	COMPATIBILITY, ELECTROMAGNETIC (EMI)
CF	FIT CHECK	COMPATIBILITY, FIT CHECK
EA	ACOUSTIC	ACOUSTIC NOISE
EB	ALTITUDE	ALTITUDE
EC	CCOH	CORROSIVE CONTAMINANTS (CCOH)
ED	DUST	DUST/SAND
EF	FUNGUS	FUNGUS
EH	HUMIDITY	HUMIDITY
EJ	SALT	SALT FOG/SPRAY
EP	BURST TEST	PRESSURE, HIGH/BURST TEST
ER	VACUUM	PRESSURE, LOW/VACUUM
ES	THERMAL VAC	SPACE SIMULATION/THERMAL VACUUM
ET	TEMPERATURE	TEMPERATURE
EV	VIBRATION	VIBRATION
EW	ACCELERATION	ACCELERATION
EX	SHOCK	SHOCK
FC	CALIBRATION	FUNCTIONAL CHECK/CALIBRATION
FD	USE	FUNCTIONAL USE/OPERATION
LF	LIFE	LIFE TEST (INCLUDING FOLLOW-UP CHECKOUT)
MA	LAUNCH	MISSION LAUNCH
MD	ASCENT	MISSION ASCENT
MG	IVA	MISSION INTRA-VEHICLE ACTIVITY
MM	EVA	MISSION EXTRA-VEHICLE ACTIVITY
MS	DESCENT	MISSION DESCENT
MX	LANDING	MISSION LANDING
RA	ASSEMBLY	ASSEMBLY/HANDLING/REWORK (NOT MAINTENANCE/ REPAIR)
RB	SPECIAL	BENCH/SPECIAL/TROUBLESHOOTING TEST
RE	RECEIVING	RECEIVING CHECKOUT
RM	MAINTENANCE	MAINTENANCE/REPAIR
VC	INSPECTION	VISUAL CHECK/INSPECTION (NONE OF ABOVE)

PROBLEM IDENTIFICATION, TIME/CYCLE IN USE (TIME/CYC)

```
**********************************************************************
*PROBLEM IDENTIFICATION:                                             *
*   SUBSYSTEM <     >     LEVEL <       >     REPORT NO. <          > *
*   STATUS <        >     TYPE <          >   REFERENCE NO. <        > *
*   VEHICLE ON <    >     CRIT. <         >   WORK UNIT <           >  *
*   LOCATION <      >     SUSP/VER <    >     OCCUR. DATE <  /  /  >    *
*   TEST/OPER. <    >     INIT/SUBS <    >    D/T REC. <  /  /  -   >   *
*   CAUSE <           >   PAE REVIEW <   >    D/T UPDATED <  /  /  -  >*
*   FAIL MODE <          >                    RESOLUTION DATE:          *
*   COND. MAT. <          >                     ESTIMATED <  /  /  >    *
*   PREVAIL. COND. <        >                   ACTUAL    <  /  /  >    *
*   TIME/CYC. <          - >                  HDW DISP    <         >   *
*   TEST DOCUMENT NUMBER <                 >   CONSTRAINT <          >  *
**********************************************************************
```

Time/Cycles in Use (TIME/CYC)

The total number of cycles or the time of operation of the article when nonconformance occurred.

Char Length	Code List	Format	Search Key	Repeating Group	Required For IPR
8	Yes	AN	No	No	No

Source: Originator.

Edits Performed:

- Checks code list for valid alpha entry for eighth character, and numeric data within first six characters, or for totally blank field.

Acceptable Input:

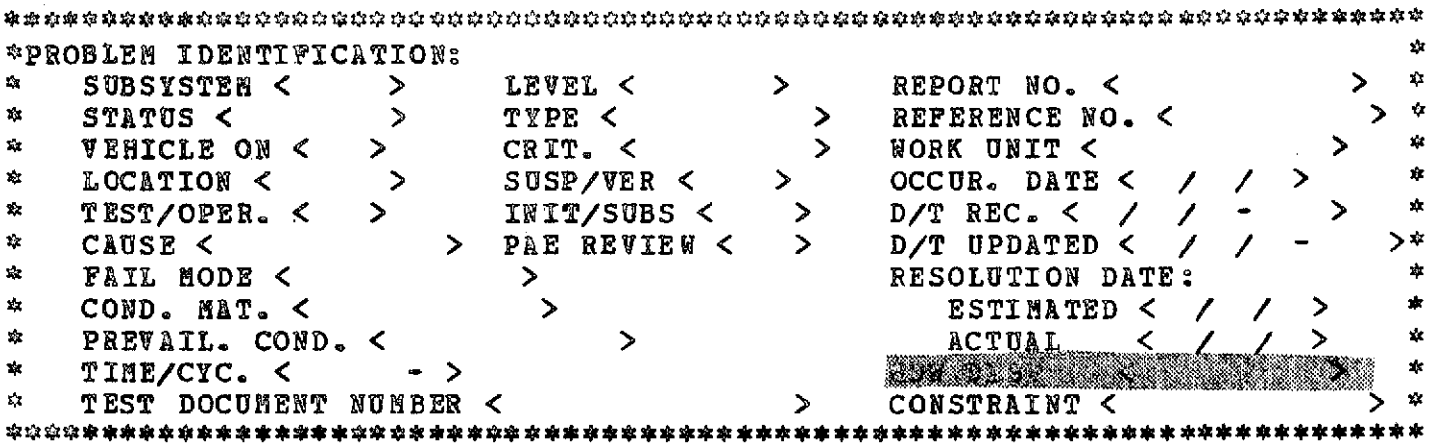
- Numeric data, first six characters, must be accompanied by alpha code for the eighth character.

Unacceptable Input:

- Invalid element value - value rejected. Originator requested to submit correct value. If none submitted, element retains previous value. Incomplete alphanumeric input, per above.

CODE LIST, TIME/CYCLE UNITS

CODE	DEFINITION
C	CYCLES
D	DAYS
H	HOURS
K	KILO-(THOUSAND) CYCLES
M	MINUTES
S	SECONDS
W	WEEKS
Y	YEARS



Hardware Disposition (HDW DISP)

Code indicating the disposition of the problem hardware.

Exp Char Length	Std Char Length	Code List	Format	Search Key	Repeating Group	Required For IPR
2	9	Yes	AN	No	No	No

Source: Originator.

Edits Performed:

- Checks code list for valid entry or blank.

Acceptable Input:

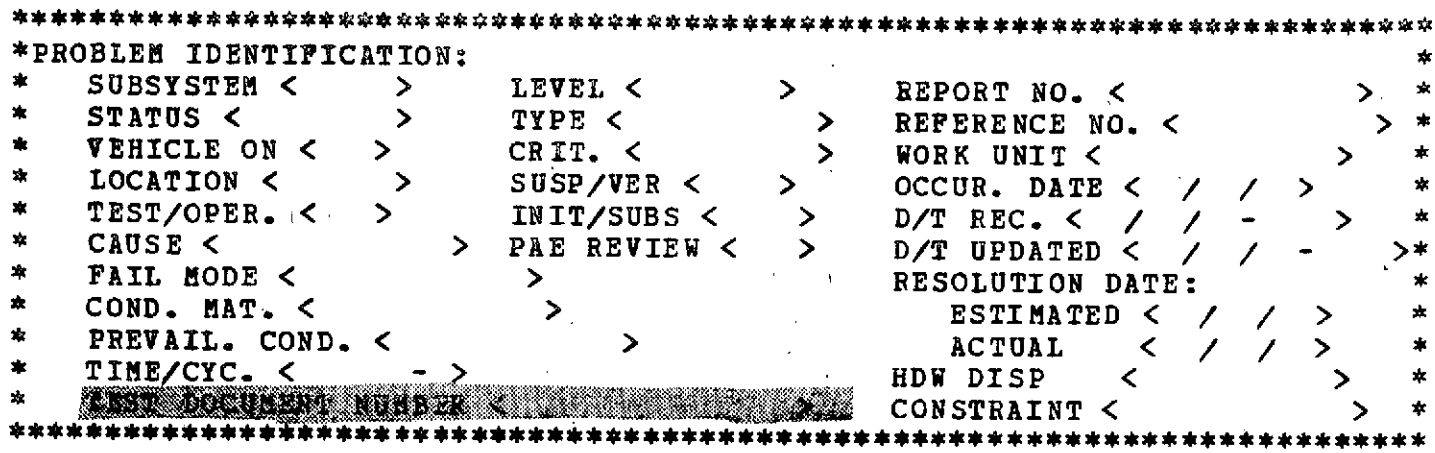
- Value entered into data base.

Unacceptable Input:

- Invalid element value - value rejected. Originator requested to submit correct value. If none submitted, element retains previous value.

CODE LIST, DISPOSITION

EXPRESS CODE	STANDARD ABBREVIATION	DEFINITION
2	REDESIGN	MODIFY - REPAIR/REWORK TO REVISED SPECIFICATIONS
3	REPAIR	REPAIR - RETURN TO ORIGINAL SPEC USING MAINTENANCE OR SPECIAL PROCEDURE
4	REWORK	REWORK - BRING TO ORIGINAL SPEC USING STANDARD MFG PROCEDURES
0	SCRAP	SCRAP
8	WAIVER	USE AS IS - WAIVER/DEVIATION IS REQUIRED
9	USE AS IS	USE AS IS - NO WAIVER/DEVIATION REQUIRED



Test Document Number

The procedure test document identification number.

Char Length	Code List	Format	Search Key	Repeating Group	Required For IPR
15	No	AN	No	No	No

Source: Originator.

Edits Performed:

- No edits required for this element. System accepts any value entered by Originator up to the maximum character length.

Acceptable Input:

- Value entered into data base.

Unacceptable Input:

- None.

PROBLEM IDENTIFICATION, CONSTRAINT

```
**************************************************************************
*PROBLEM IDENTIFICATION:                                                 *
*   SUBSYSTEM <     >     LEVEL <       >     REPORT NO. <            >  *
*   STATUS <        >     TYPE <          >   REFERENCE NO. <          >  *
*   VEHICLE ON <   >      CRIT. <         >   WORK UNIT <             >   *
*   LOCATION <      >     SUSP/VER <     >    OCCUR. DATE <  /  /  >      *
*   TEST/OPER. <   >      INIT/SUBS <    >    D/T REC. <  /  /  -    >    *
*   CAUSE <            > PAE REVIEW <   >    D/T UPDATED <  /  /  -    >*
*   FAIL MODE <           >                  RESOLUTION DATE:            *
*   COND. MAT. <           >                    ESTIMATED <  /  /  >     *
*   PREVAIL. COND. <          >                 ACTUAL    <  /  /  >     *
*   TIME/CYC. <      - >                      HDW DISP    <          >    *
*   TEST DOCUMENT NUMBER <                 >  CONSTRAINT <          >    *
**************************************************************************
```

Constraint

To identify milestones that will constrain problem resolution.

Char Length	Code List	Format	Search Key	Repeating Group	Required For IPR
12	No	AN	No	No	No

Source: KSC or PAE.

Edits Performed:

- None. No edits required for this element. System will accept any value entered up to maximum character length.

Acceptable Input:

- Value entered into data base.

Unacceptable Input:

- None.

HARDWARE IDENTIFICATION DIVISION

```
*************************************************************************
*HARDWARE IDENTIFICATION:                                               *
*   TEST/PROC HARDWARE                                                  *
*      PART NAME     <                      >   MANUFACTURER  <       >  *
*      PART NUMBER   <                      >   SERIAL/LOT    <          >*
*   NONCONFORMING ARTICLE                                               *
*      PART NAME     <                      >   MANUFACTURER  <       >  *
*      PART NUMBER   <                      >   SERIAL/LOT    <          >*
*   NEXT HIGHER ASSEMBLY                                                *
*      PART NAME     <                      >   MANUFACTURER  <       >  *
*      PART NUMBER   <                      >   SERIAL/LOT    <          >*
*   CONTRACT END ITEM                                                   *
*      PART NAME     <                      >   MANUFACTURER  <       >  *
*      PART NUMBER   <                      >   SERIAL/LOT    <          >*
*************************************************************************
```

The Hardware Identification division with its assembly hierarchy of Procedure Hardware, Nonconforming Article, Next Higher Assembly, and Contract End Item is described in this division of the JSC Shuttle Problem Displays.

An example of element data to be presented in this division is presented below.

EXAMPLE:

```
*************************************************************************
*HARDWARE IDENTIFICATION:                                               *
*   TEST/PROC HARDWARE                                                  *
*      PART NAME     <SKIN PANEL            >   MANUFACTURER  <RISD  >  *
*      PART NUMBER   <V070-332021-001       >   SERIAL/LOT    <439990007268>*
*   NONCONFORMING ARTICLE                                               *
*      PART NAME     <SKIN PANEL RIB        >   MANUFACTURER  <RISD  >  *
*      PART NUMBER   <R211-873262-017       >   SERIAL/LOT    <647854345367>*
*   NEXT HIGHER ASSEMBLY                                                *
*      PART NAME     <                      >   MANUFACTURER  <       >  *
*      PART NUMBER   <                      >   SERIAL/LOT    <          >*
*   CONTRACT END ITEM                                                   *
*      PART NAME     <                      >   MANUFACTURER  <       >  *
*      PART NUMBER   <                      >   SERIAL/LOT    <          >*
*************************************************************************
```

```
**********************************************************************************
*HARDWARE IDENTIFICATION:                                                        *
*   TEST/PROC HARDWARE                                                           *
*      PART NAME    <                    >   MANUFACTURER  <       >           *
*      PART NUMBER  <                    >   SERIAL/LOT    <                 >*
*   NONCONFORMING ARTICLE                                                        *
*      PART NAME    <                    >   MANUFACTURER  <       >           *
*      PART NUMBER  <                    >   SERIAL/LOT    <                 >*
*   NEXT HIGHER ASSEMBLY                                                         *
*      PART NAME    <                    >   MANUFACTURER  <       >           *
*      PART NUMBER  <                    >   SERIAL/LOT    <                 >*
*   CONTRACT END ITEM                                                            *
*      PART NAME    <                    >   MANUFACTURER  <       >           *
*      PART NUMBER  <                    >   SERIAL/LOT    <                 >*
**********************************************************************************
```

Procedure Hardware, Part Name

Part name of the test document procedure hardware under test.

Char Length	Code List	Format	Search Key	Repeating Group	Required For IPR
20	No	AN	Yes	No	No

Source: Originator.

Edits Performed:

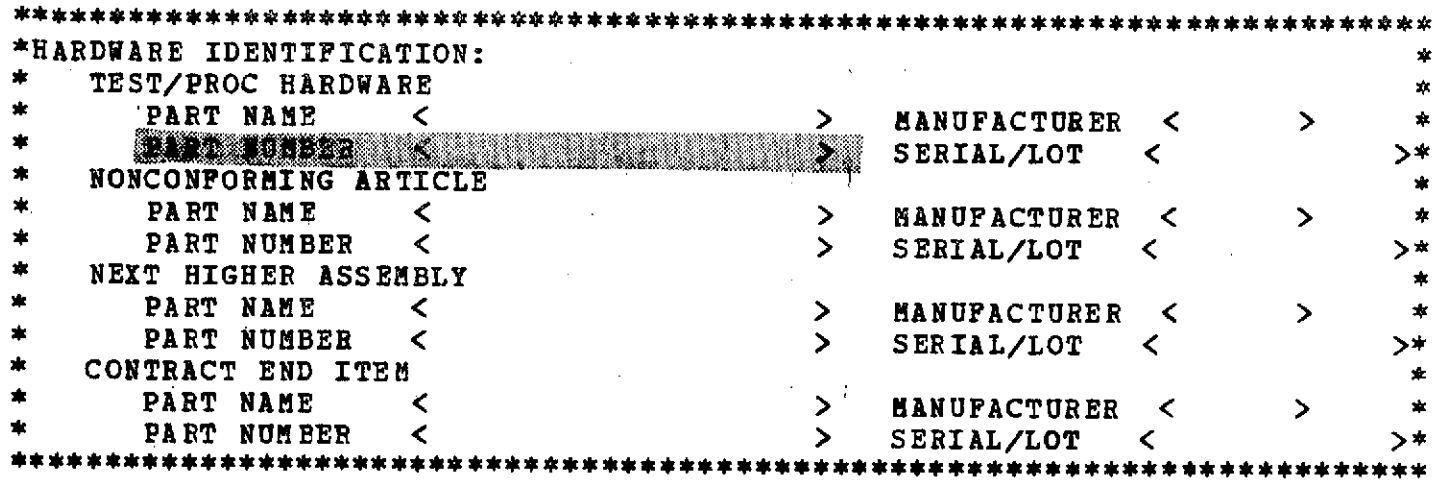
- No edits performed on the value entered for this element. System will accept a value entered by Originator up to the maximum character length.

Acceptable Input:

- Value entered into data base. System accepts any value entered by Originator up to the maximum character length.

Unacceptable Input:

- None.



Procedure Hardware, Part Number

Part number of the test document procedure hardware under test.

Char Length	Code List	Format	Search Key	Repeating Group	Required For IPR
20	No	AN	Yes	No	No

Source: Originator.

Edits Performed:

- No edits performed on the value entered for this element. System will accept any value entered by Originator up to the maximum character length.

Acceptable Input:

- Value entered into data base. System accepts any value entered by Originator up to maximum character length.

Unacceptable Input:

- None.

```
**********************************************************************
*HARDWARE IDENTIFICATION:                                            *
*   TEST/PROC HARDWARE                                               *
*      PART NAME     <                >   MANUFACTURER  <       >     *
*      PART NUMBER   <                >   SERIAL/LOT    <            >*
*   NONCONFORMING ARTICLE                                            *
*      PART NAME     <                >   MANUFACTURER  <       >     *
*      PART NUMBER   <                >   SERIAL/LOT    <            >*
*   NEXT HIGHER ASSEMBLY                                             *
*      PART NAME     <                >   MANUFACTURER  <       >     *
*      PART NUMBER   <                >   SERIAL/LOT    <            >*
*   CONTRACT END ITEM                                                *
*      PART NAME     <                >   MANUFACTURER  <       >     *
*      PART NUMBER   <                >   SERIAL/LOT    <            >*
**********************************************************************
```

Procedure Hardware, Manufacturer

Manufacturer of the test document procedure hardware under test.

Char Length	Code List	Format	Search Key	Repeating Group	Required For IPR
6	Yes	AN	No	No	No

Source: Originator.

Edits Performed:

- Checks code list for valid entry or blank.

Acceptable Input:

- Value entered into data base.

Unacceptable Input:

- Invalid element value - value rejected. Originator requested to submit correct value. If none submitted, element retains previous value.

CODE LIST, MANUFACTURERS

Utilize Code List, Organizations, page 2-28.

```
**************************************************************************
*HARDWARE IDENTIFICATION:                                                *
*   TEST/PROC HARDWARE                                                   *
*      PART NAME     <                    >   MANUFACTURER  <       >     *
*      PART NUMBER   <                    >   SERIAL/LOT    <            >*
*   NONCONFORMING ARTICLE                                                *
*      PART NAME     <                    >   MANUFACTURER  <       >     *
*      PART NUMBER   <                    >   SERIAL/LOT    <            >*
*   NEXT HIGHER ASSEMBLY                                                 *
*      PART NAME     <                    >   MANUFACTURER  <       >     *
*      PART NUMBER   <                    >   SERIAL/LOT    <            >*
*   CONTRACT END ITEM                                                    *
*      PART NAME     <                    >   MANUFACTURER  <       >     *
*      PART NUMBER   <                    >   SERIAL/LOT    <            >*
**************************************************************************
```

Procedure Hardware, Serial/Lot Number

Serial or Lot number of the test document procedure hardware under test.

Char Length	Code List	Format	Search Key	Repeating Group	Required For IPR
12	No	AN	No	No	No

Source: Originator.

Edits Performed:

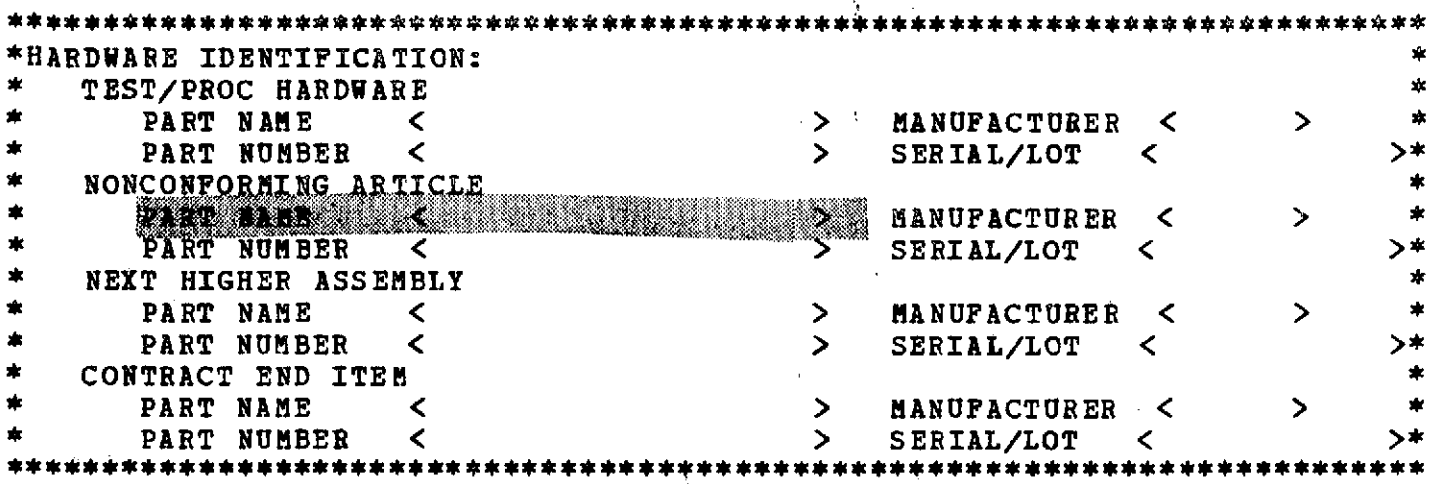
- No edits performed on the value entered for this element. System will accept any value entered by Originator up to the maximum character length.

Acceptable Input:

- Value entered into data base.

Unacceptable Input:

- None.



Nonconforming Article, Part Name

Part name of the nonconforming article or the lowest isolated part.

Char Length	Code List	Format	Search Key	Repeating Group	Required For IPR
20	No	AN	Yes	No	Yes

Source: Originator.

Edits Performed:

- Element value cannot be blank.

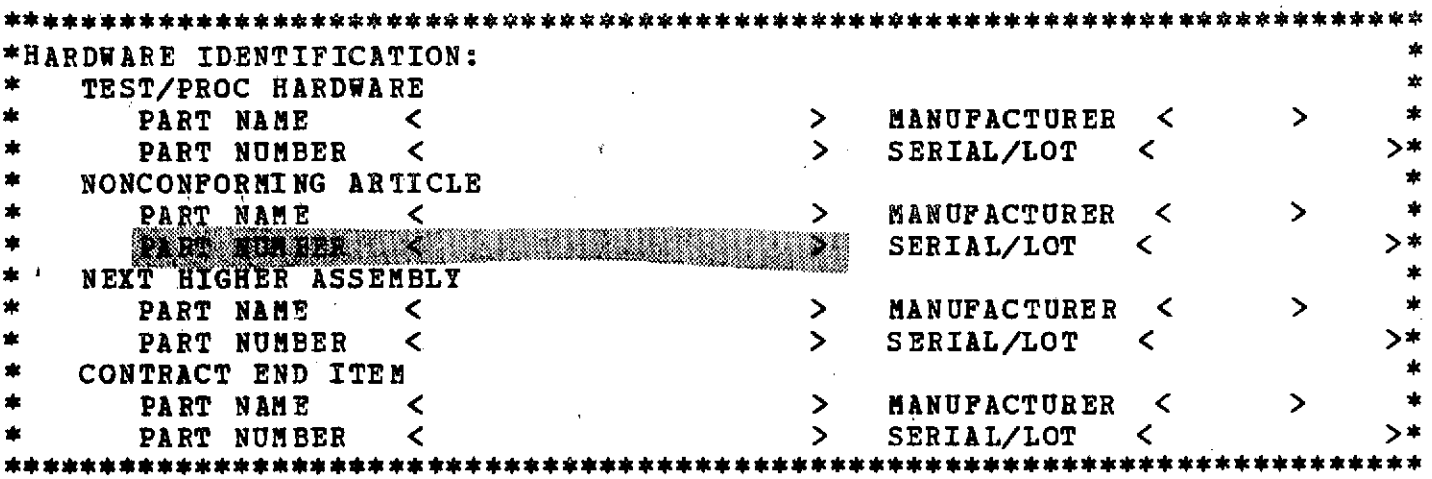
Acceptable Input:

- Value entered into data base.

Unacceptable Input:

- No value entered. New problem report will be rejected unless Originator enters a value for this element.

HARDWARE IDENTIFICATION, NONCONFORMING ARTICLE, PART NUMBER



Nonconforming Article, Part Number

Part number of the nonconforming article or the lowest isolated part.

Char Length	Code List	Format	Search Key	Repeating Group	Required For IPR
20	No	AN	Yes	No	Yes

Source: Originator.

Edits Performed:

- Element value cannot be blank.

Acceptable Input:

- Value entered into data base.

Unacceptable Input:

- No value entered. New problem report will be rejected unless Originator enters a value for this element.

HARDWARE IDENTIFICATION, NONCONFORMING ARTICLE, MANUFACTURER

```
**********************************************************************
*HARDWARE IDENTIFICATION:                                            *
*   TEST/PROC HARDWARE                                               *
*      PART NAME     <                >   MANUFACTURER  <       >     *
*      PART NUMBER   <                >   SERIAL/LOT    <            >*
*   NONCONFORMING ARTICLE                                            *
*      PART NAME     <                >   MANUFACTURER  <       >     *
*      PART NUMBER   <                >   SERIAL/LOT    <            >*
*   NEXT HIGHER ASSEMBLY                                             *
*      PART NAME     <                >   MANUFACTURER  <       >     *
*      PART NUMBER   <                >   SERIAL/LOT    <            >*
*   CONTRACT END ITEM                                                *
*      PART NAME     <                >   MANUFACTURER  <       >     *
*      PART NUMBER   <                >   SERIAL/LOT    <            >*
**********************************************************************
```

Nonconforming Article, Manufacturer

Manufacturer of the nonconforming article or the lowest isolated part.

Char Length	Code List	Format	Search Key	Repeating Group	Required For IPR
6	Yes	AN	No	No	No

Source: Originator.

Edits Performed:

- Checks code list for valid entry or blank.

Acceptable Input:

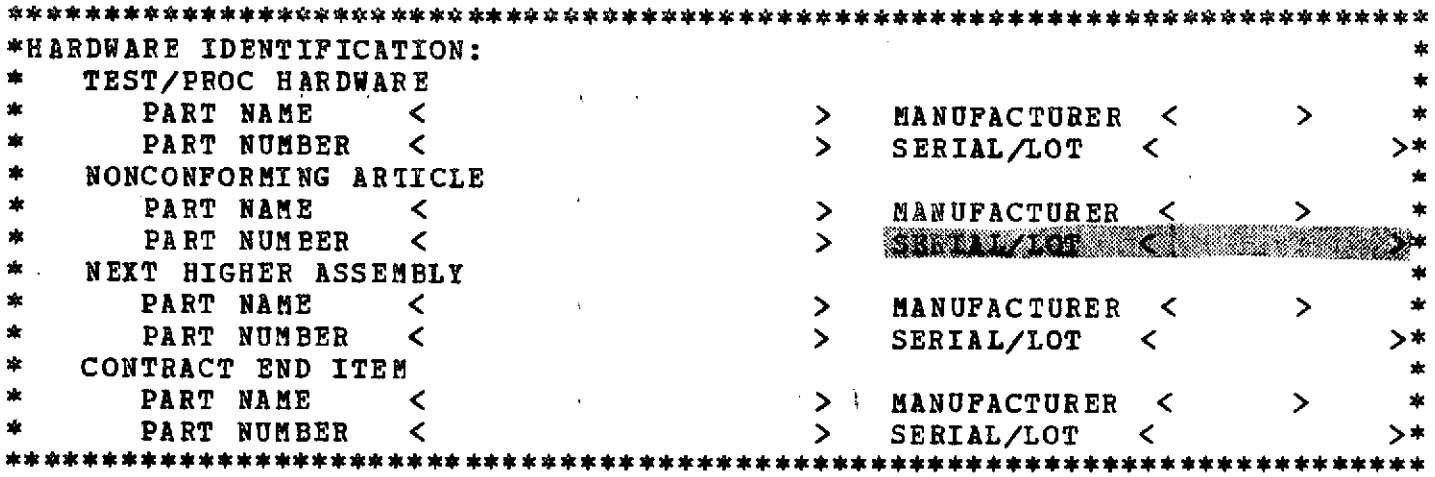
- Value entered into data base.

Unacceptable Input:

- Invalid element value - value rejected. Originator requested to submit correct value. If none submitted, element value retains old value.

CODE LIST, LIST OF MANUFACTURERS

Utilize Code List, Organizations, page 2-28.



Nonconforming Article, Serial/Lot Number

Serial or lot number of the nonconforming article or the lowest isolated part.

Char Length	Code List	Format	Search Key	Repeating Group	Required For IPR
12	No	AN	No	No	No

Source: Originator.

Edits Performed:

- No edits performed on the value entered for this element. System will accept any value entered by Originator up to the maximum character length.

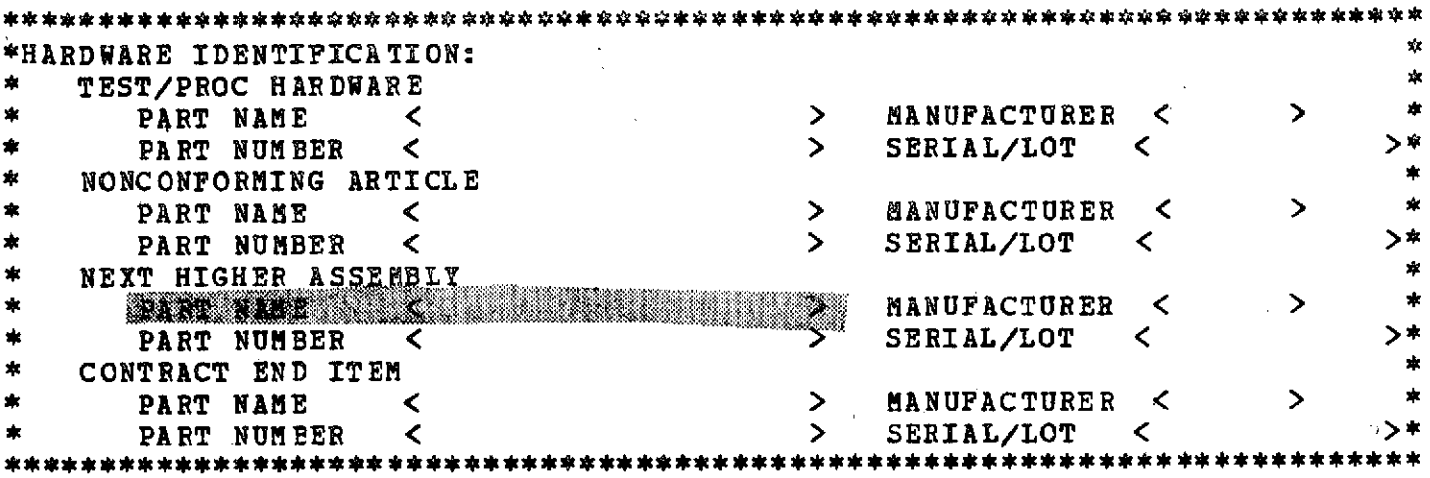
Acceptable Input:

- Value entered into data base.

Unacceptable Input:

- None.

HARDWARE IDENTIFICATION, NEXT HIGHER ASSEMBLY, PART NAME



Next Higher Assembly, Part Name

The part name of the next higher assembly above the nonconforming article.

Char Length	Code List	Format	Search Key	Repeating Group	Required For IPR
20	No	AN	Yes	No	No

Source: Originator.

Edits Performed:

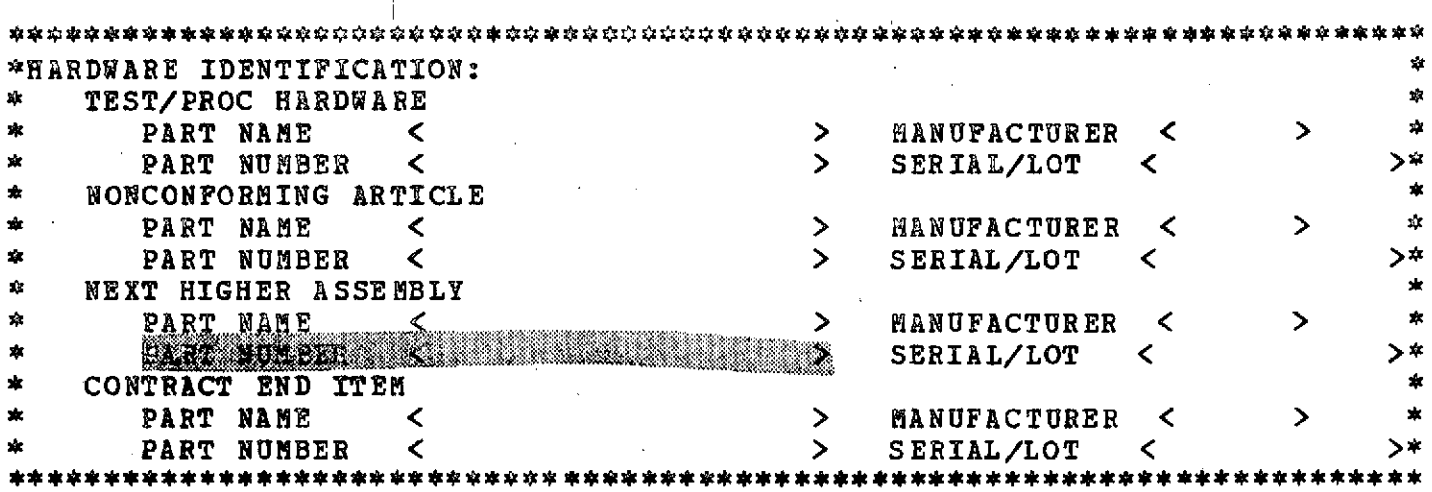
- No edits performed on the value entered for this element. System will accept any value entered by Originator up to the maximum character length.

Acceptable Input:

- Value entered into data base.

Unacceptable Input:

- None.



Next Higher Assembly, Part Number

The part number of the next higher assembly above the nonconforming article.

Char Length	Code List	Format	Search Key	Repeating Group	Required For IPR
20	No	AN	Yes	No	No

Source: Originator.

Edits Performed:

- No edits performed on the value entered for this element. System will accept any value entered by Originator up to the maximum character length.

Acceptable Input:

- Value entered into data base.

Unacceptable Input:

- None.

HARDWARE IDENTIFICATION, NEXT HIGHER ASSEMBLY, MANUFACTURER

```
**********************************************************************
*HARDWARE IDENTIFICATION:                                            *
*   TEST/PROC HARDWARE                                               *
*      PART NAME     <                >   MANUFACTURER  <       >     *
*      PART NUMBER   <                >   SERIAL/LOT    <            >*
*   NONCONFORMING ARTICLE                                            *
*      PART NAME     <                >   MANUFACTURER  <       >     *
*      PART NUMBER   <                >   SERIAL/LOT    <            >*
*   NEXT HIGHER ASSEMBLY                                             *
*      PART NAME     <                >   MANUFACTURER  <       >     *
*      PART NUMBER   <                >   SERIAL/LOT    <            >*
*   CONTRACT END ITEM                                                *
*      PART NAME     <                >   MANUFACTURER  <       >     *
*      PART NUMBER   <                >   SERIAL/LOT    <            >*
**********************************************************************
```

Next Higher Assembly, Manufacturer

The manufacturer of the next higher assembly above the nonconforming article.

Char Length	Code List	Format	Search Key	Repeating Group	Required For IPR
6	Yes	AN	No	No	No

Source: Originator.

Edits Performed:

- Checks code list for valid entry.

Acceptable Input:

- Value entered into data base.

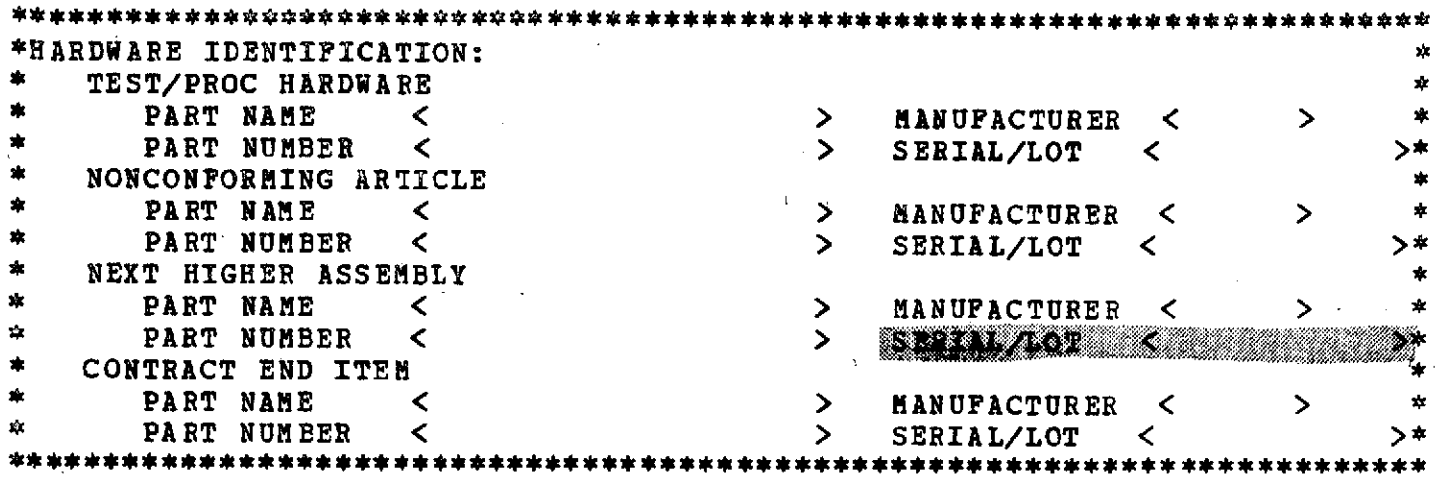
Unacceptable Input:

- Invalid element value - value rejected. Originator requested to submit correct value. If none submitted, element value retains old value.

CODE LIST, LIST OF MANUFACTURERS

Utilize Code List, Organizations, page 2-28.

HARDWARE IDENTIFICATION, NEXT HIGHER ASSEMBLY, SERIAL/LOT NUMBER



Next Higher Assembly, Serial/Lot Number

The assembly serial or lot number of the next higher assembly above the nonconforming article.

Char Length	Code List	Format	Search Key	Repeating Group	Required For IPR
12	No	AN	No	No	No

Source: Originator.

Edits Performed:

- No edits performed on the value entered for this element. System will accept any value entered by Originator up to the maximum character length.

Acceptable Input:

- Value entered into data base.

Unacceptable Input:

- None.

```
**********************************************************************
*HARDWARE IDENTIFICATION:                                            *
*   TEST/PROC HARDWARE                                               *
*      PART NAME      <                >   MANUFACTURER  <       >    *
*      PART NUMBER    <                >   SERIAL/LOT    <            >*
*   NONCONFORMING ARTICLE                                            *
*      PART NAME      <                >   MANUFACTURER  <       >    *
*      PART NUMBER    <                >   SERIAL/LOT    <            >*
*   NEXT HIGHER ASSEMBLY                                             *
*      PART NAME      <                >   MANUFACTURER  <       >    *
*      PART NUMBER    <                >   SERIAL/LOT    <            >*
*   CONTRACT END ITEM                                                *
*      PART NAME      <                >   MANUFACTURER  <       >    *
*      PART NUMBER    <                >   SERIAL/LOT    <            >*
**********************************************************************
```

Contract End Item, Part Name

The name of the contract end item.

Char Length	Code List	Format	Search Key	Repeating Group	Required For IPR
20	No	AN	Yes	No	No

Source: Originator.

Edits Performed:

- No edits performed on the value entered for this element. System will accept any value entered by Originator up to the maximum character length.

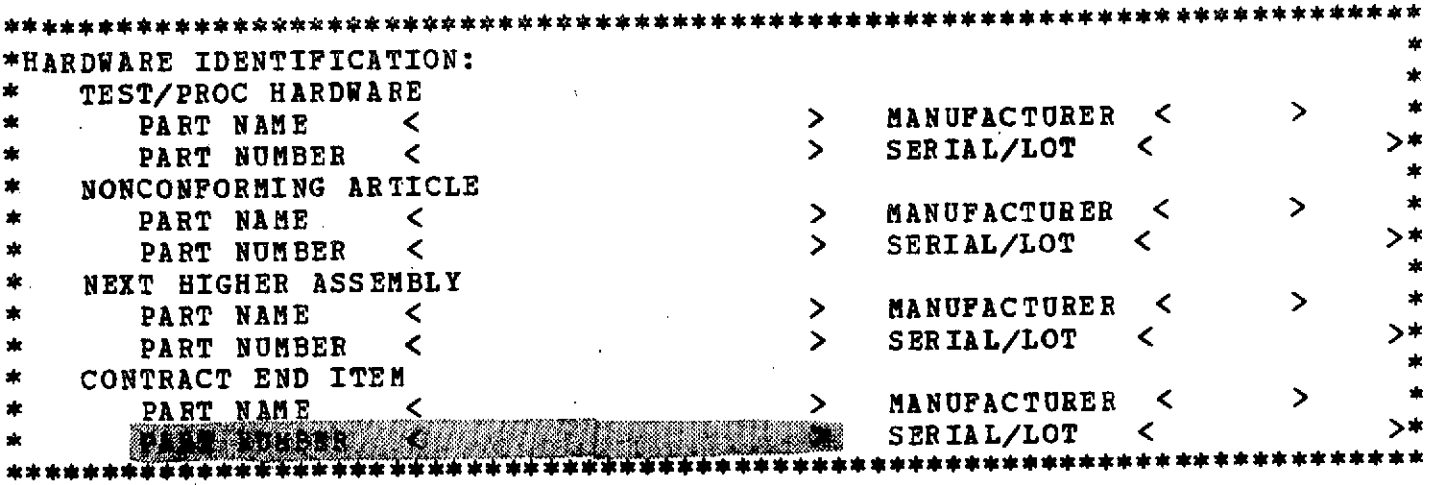
Acceptable Input:

- Value entered into data base.

Unacceptable Input:

- None.

HARDWARE IDENTIFICATION, CONTRACT END ITEM, PART NUMBER



Contract End Item, Part Number

The number of the contract end item.

Char Length	Code List	Format	Search Key	Repeating Group	Required For IPR
20	No	AN	Yes	No	No

Source: Originator.

Edits Performed:

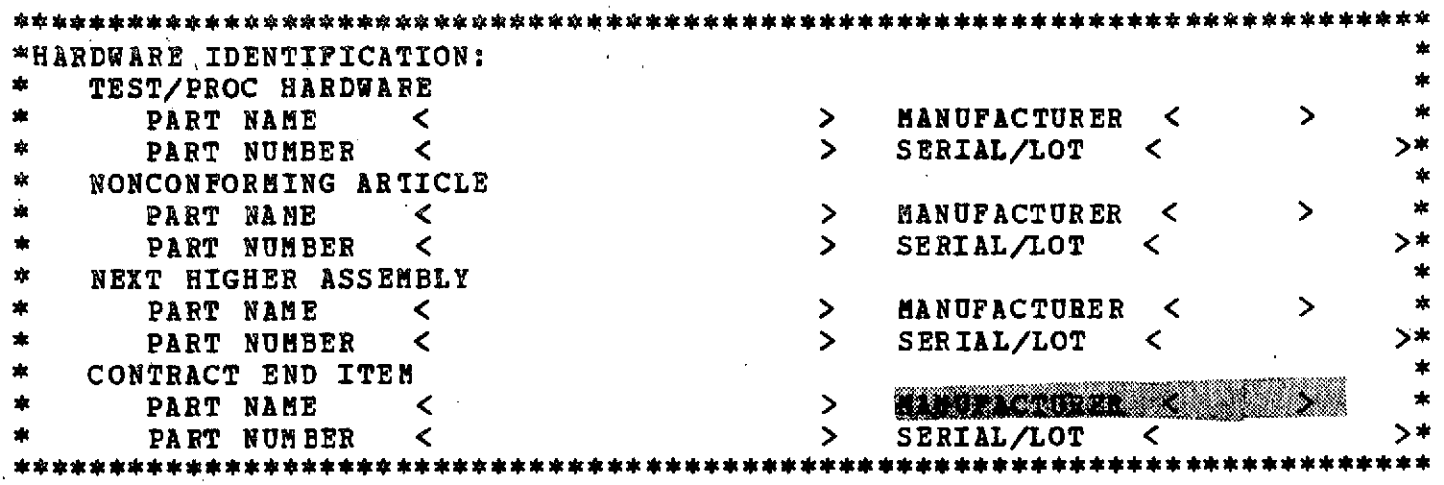
- No edits performed on the value entered for this element. System will accept any value entered by Originator up to the maximum character length.

Acceptable Input:

- Value entered into data base.

Unacceptable Input:

- None.



Contract End Item, Manufacturer

The manufacturer of the contract end item.

Char Length	Code List	Format	Search Key	Repeating Group	Required For IPR
6	Yes	AN	No	No	No

Source: Originator.

Edits Performed:

- Checks code list for valid entry or blank.

Acceptable Input:

- Value entered into data base.

Unacceptable Input:

- Invalid element value - value rejected. Originator requested to submit correct value. If none submitted, element retains previous value.

CODE LIST, LIST OF MANUFACTURERS

Utilize Code List, Organizations, page 2-28.

```
**************************************************************************
*HARDWARE IDENTIFICATION:                                                *
*   TEST/PROC HARDWARE                                                   *
*      PART NAME     <                  >  MANUFACTURER  <       >       *
*      PART NUMBER   <                  >  SERIAL/LOT    <               >*
*   NONCONFORMING ARTICLE                                                *
*      PART NAME     <                  >  MANUFACTURER  <       >       *
*      PART NUMBER   <                  >  SERIAL/LOT    <               >*
*   NEXT HIGHER ASSEMBLY                                                 *
*      PART NAME     <                  >  MANUFACTURER  <       >       *
*      PART NUMBER   <                  >  SERIAL/LOT    <               >*
*   CONTRACT END ITEM                                                    *
*      PART NAME     <                  >  MANUFACTURER  <       >       *
*      PART NUMBER   <                  >  SERIAL/LOT    <               >*
**************************************************************************
```

Contract End Item, Serial/Lot Number

The serial or lot number of the contract end item.

Char Length	Code List	Format	Search Key	Repeating Group	Required For IPR
12	No	AN	No	No	No

Source: Originator.

Edits Performed:

- No edits performed on the value entered for this element. System will accept any value entered by Originator up to the maximum character length.

Acceptable Input:

- Value entered into data base.

Unacceptable Input:

- None.

PROBLEM EFFECTIVITY DIVISION

```
*****************************************************************************
*                                                                           *
*    MISSION NO.  *      *      *      *      *      *      *      *      *
*    VEHICLE NO.  *      *      *      *      *      *      *      *      *
*    CRITICALITY  *      *      *      *      *      *      *      *      *
*    STATUS       *      *      *      *      *      *      *      *      *
*****************************************************************************
```

Specific missions and/or vehicles affected by the nonconformance problem are identified in the Problem Effectivity division of the JSC Shuttle Problem Displays along with the Criticality of the problem and its current status. If more than eight entries exist, a flag will appear in the 8th column indicating the user should execute a special command to retrieve the additional information if desired.

An example of element data to be presented in Problem Effectivity division is presented below.

EXAMPLE:

```
*****************************************************************************
*PROBLEM EFFECTIVITY:                                                       *
*    MISSION NO.  *100227*100228*100231*100232*100233*100234*100237*100238*
*    VEHICLE NO.  *017   *018   *020   *019   *017   *021   *018   *020   *
*    CRITICALITY  *2     *2     *1     *3     *2     *3     *2     *3     *
*    STATUS       *OPEN  *OPEN  *OPEN  *EXPL  *OPEN  *CLOSED*OPEN  *CLOSED*
*****************************************************************************
```

PROBLEM EFFECTIVITY, MISSION NUMBER

```
**********************************************************************
*PROBLEM EFFECTIVITY:                                                *
*   MISSION NO.   *   *   *   *   *   *   *   *   *                 *
*   VEHICLE NO.   *   *   *   *   *   *   *   *   *                 *
*   CRITICALITY   *   *   *   *   *   *   *   *   *                 *
*   STATUS        *   *   *   *   *   *   *   *   *                 *
**********************************************************************
```

Mission Number (MISSION NO.)

Identification of missions affected by this problem. The mission number is entered left justified.

Char Length	Code List	Format	Search Key	Repeating Group	Required For IPR
6	No	AN	No	Yes	No

Source: Originator or PAE.

Edits Performed:

- Checks value entered for ALL.
  - If mission number is entered, then criticality and status must be entered.
  - If problem is reopened, there must be at least one open effectivity.

Acceptable Input:

- Value entered into data base, either value ALL or a mission number.

Unacceptable Input:

- Mission number input without accompanying criticality and status entries.

PROBLEM EFFECTIVITY, VEHICLE NUMBER

```
**********************************************************************
*PROBLEM EFFECTIVITY:                                                *
*   MISSION NO.   *     *     *     *     *     *     *     *       *
*   VEHICLE NO.   *     *     *     *     *     *     *     *       *
*   CRITICALITY   *     *     *     *     *     *     *     *       *
*   STATUS        *     *     *     *     *     *     *     *       *
**********************************************************************
```

Vehicle Number (VEHICLE NO.)

Identification of vehicles affected by this problem. The vehicle number is entered left justified.

Char Length	Code List	Format	Search Key	Repeating Group	Required For IPR
3	No	AN	No	Yes	No

Source: Originator or PAE.

Edits Performed:

- Check VEHICLE NUMBER for value ALL.
- If Vehicle number is entered, then criticality and status must be entered.
- If problem is reopened, there must be at least one open effectivity.

Acceptable Input:

- Value entered into data base, either value ALL or VEHICLE NUMBER.

Unacceptable Input:

- Vehicle number input without accompanying criticality and status entries.

PROBLEM EFFECTIVITY, CRITICALITY

```
**********************************************************************************
*PROBLEM EFFECTIVITY:                                                            *
*   MISSION NO.  *      *      *      *      *      *      *      *      *
*   VEHICLE NO.  *      *      *      *      *      *      *      *      *
*   CRITICALITY  *      *      *      *      *      *      *      *      *
*   STATUS       *      *      *      *      *      *      *      *      *
**********************************************************************************
```

Criticality

The criticality of this problem for each mission and vehicle listed. The criticality code value is to be entered left justified.

Char Length	Code List	Format	Search Key	Repeating Group	Required For IPR
1	Yes	AN	No	Yes	No

Source: Originator or PAE.

Edits Performed:

- Checks code list for valid entry if vehicle and/or mission are not blank or ALL. If vehicle and mission are blank then criticality must be blank. If vehicle and mission are input, criticality input is required.

Acceptable Input:

- Value entered into data base.

Unacceptable Input:

- Invalid element value - value rejected. Originator or PAE requested to submit correct value. If none submitted, element retains previous value. If vehicle and mission are input, criticality must be input.

CODE LIST, CRITICALITY OF RECURRENCE

EXPRESS CODE	STANDARD ABBREVIATION	DEFINITION
1	1-SAFETY	LOSS OF LIFE OR VEHICLE
2	2-MISSION	LOSS OF MISSION
3	3-OTHER	ALL OTHERS

PROBLEM EFFECTIVITY, STATUS

```
**********************************************************************
*PROBLEM EFFECTIVITY:                                                *
*   MISSION NO.  *      *      *      *      *      *      *      *   *
*   VEHICLE NO.  *      *      *      *      *      *      *      *   *
*   CRITICALITY  *      *      *      *      *      *      *      *   *
*   STATUS       *      *      *      *      *      *      *      *   *
**********************************************************************
```

Status

The status of the problem for each mission and vehicle listed.

Char Length	Code List	Format	Search Key	Repeating Group	Required For IPR
6	Yes	AN	No	Yes	No

Source: Originator or PAE.

Edits Performed:

- Check if MISSION and VEHICLE is ALL and accept O, C, E, or R code.
- Check if MISSION and VEHICLE is not ALL and accept O, C, or E code.
- Checks code list for valid entry.
- Element value must be entered if vehicle and mission are entered.
- If problem is reopened, there must be at least one open effectivity and problem status must be open and actual resolution date must be blank.

Acceptable Input:

- Value entered into data base.

Unacceptable Input:

- If MISSION or VEHICLE value is not ALL and R is entered, value rejected.
- Invalid element value - value rejected. Originator or PAE requested to submit correct value. If none submitted, element retains previous value.

CODE LIST, PROBLEM STATUS

CODE	ABBREVIATION	DEFINITION
O	OPEN	PROBLEM NOT RESOLVED
C	CLOSED	PROBLEM CLOSED (FIXED)
E	EXPL	PROBLEM EXPLAINED (NOT FIXED)
R	RESL	PROBLEM RESOLVED (SOME EXPLAINED, SOME CLOSED)

PROBLEM DESCRIPTION BLOCK

```
*****************************************************************************
*PROBLEM DESCRIPTION:                                                       *
*<WALL THICKNESS AT STRINGERS A112 AND A95 WAS DETERMINED TO BE             *
*UNDERSIZE.  THICKNESS S/B .100"+/-.010"$ BUT IS FROM .0438" TO .0481"      *
*BETWEEN STA SCM 206.620 AND XCM 225.500.                                   *
*                                                                          *
*                                                                          *
*                                                                          *
*                                                                          *
*                                                                          *
*                                                                          *
*                                                                         >*
*****************************************************************************
```

Problem Description

Description of the problem input by the Originator at the time of submittal of the initial problem report. Description should include comparison of expected results with actual results. Up to nine lines of information can be entered.

Char Length	Code List	Format	Search Key	Repeating Group	Required For IPR
648	No	TEXT	No	No	Yes

Source: Originator.

Edits Performed:

- Element value cannot be blank.

Acceptable Input:

- Value entered into data base.

Unacceptable Input:

- No value entered. New Problem Report will be rejected unless Originator enters a value for this element.

PERTINENT DOCUMENTS DIVISION

```
*************************************************************************
*PERTINENT DOCUMENTS:                                                   *
*        TYPE        ISSUE SITE        DOCUMENT NUMBER        ISSUE DATE *
*    <             > <           >  <                   >    <  /  /   > *
*    <             > <           >  <                   >    <  /  /   > *
*    <             > <           >  <                   >    <  /  /   > *
*    <             > <           >  <                   >    <  /  /   > *
*    <             > <           >  <                   >    <  /  /   > *
*    <             > <           >  <                   >    <  /  /   > *
*    <             > <           >  <                   >    <  /  /   > *
*    <             > <           >  <                   >    <  /  /   > *
*************************************************************************
```

Cross reference of document type and document identification are presented in this division of the JSC Shuttle Problem Displays. Up to eight documents may be entered.

An example of element data to be presented in Pertinent Documents division is presented below.

All element values for a particular reference document must be entered for the input to be accepted.

EXAMPLE:

```
*************************************************************************
*PERTINENT DOCUMENTS:                                                   *
*        TYPE        ISSUE SITE        DOCUMENT NUMBER        ISSUE DATE *
*   <TEST RPT     >  <DOWNEY>       <123456789012345>       <06/24/73>  *
*   <ANAL RPT     >  <JSC   >       <234567890123456>       <05/23/73>  *
*   <DISC RPT     >  <DOWNEY>       <345678901234567>       <04/21/73>  *
*   <ECP/RECP     >  <DOWNEY>       <456789012345678>       <01/15/74>  *
*   <EO           >  <DOWNEY>       <567890123456789>       <01/28/74>  *
*   <PROB PREV    >  <DOWNEY>       <678901234567890>       <06/01/74>  *
*   <PROB RPT     >  <DOWNEY>       <789012345678901>       <06/18/74>  *
*   <RES RPT      >  <JSC   >       <890123456789012>       <06/24/74>  *
*************************************************************************
```

PERTINENT DOCUMENTS, TYPE

```
**********************************************************************
*PERTINENT DOCUMENTS:                                                *
*          TYPE      ISSUE SITE      DOCUMENT NUMBER       ISSUE DATE *
*    <           >   <       >       <                 >   <  /  /  >  *
*    <           >   <       >       <                 >   <  /  /  >  *
*    <           >   <       >       <                 >   <  /  /  >  *
*    <           >   <       >       <                 >   <  /  /  >  *
*    <           >   <       >       <                 >   <  /  /  >  *
*    <           >   <       >       <                 >   <  /  /  >  *
*    <           >   <       >       <                 >   <  /  /  >  *
*    <           >   <       >       <                 >   <  /  /  >  *
**********************************************************************
```

Type

Coded description of the type of document being referenced. Up to eight pertinent documents may be entered.

Exp Char Length	Std Char Length	Code List	Format	Search Key	Repeating Group	Required For IPR
2	12	Yes	AN	No	Yes	No

Source: Originator, PAE, or SR&QA.

Edits Performed:

- Checks for complete entry of all document element values.
- Checks code list for valid entry or blank.

Acceptable Input:

- Value entered into data base.

Unacceptable Input:

- Invalid element value - value rejected. Originator or PAE requested to submit correct value. If none submitted, element retains previous value.
- First three element values must be input. (ISSUE DATE not necessary.)

CODE LIST, DOCUMENT TYPE

EXPRESS CODE	STANDARD ABBREVIATION	DEFINITION
AR	ANAL RPT	REPORT, ANALYSIS
DR	DISC RPT	REPORT/RECORD-DISCREPANCY/DISPOSITION
EC	ECP/RECP	ENGINEERING CHANGE PROPOSAL (INCLUDES REQUEST)
EO	EO	ENGINEERING ORDER
MC	MCR	MASTER CHANGE RECORD
PP	PROB, PREV	REPORT, PROBLEM, PREVIOUS OCCURRENCE
PR	PROB, RPT	REPORT, PROBLEM, SAME OCCURRENCE
RR	RES RPT	REPORT, PROBLEM, RESOLUTION
TP	TEST PROC	TEST PROCEDURE/PREPARATION-SHEET
TR	TEST RPT	REPORT, TEST
WD	WAIV/DEV	WAIVER/DEVIATION

C-2

PERTINENT DOCUMENTS, ISSUE SITE

```
**********************************************************************
*PERTINENT DOCUMENTS:                                                *
*       TYPE          ISSUE SITE      DOCUMENT NUMBER      ISSUE DATE *
*    <          >    <          >    <                >    <  /  /  > *
*    <          >    <          >    <                >    <  /  /  > *
*    <          >    <          >    <                >    <  /  /  > *
*    <          >    <          >    <                >    <  /  /  > *
*    <          >    <          >    <                >    <  /  /  > *
*    <          >    <          >    <                >    <  /  /  > *
*    <          >    <          >    <                >    <  /  /  > *
*    <          >    <          >    <                >    <  /  /  > *
**********************************************************************
```

Issue Site

Code for the site of each pertinent document listed. Up to eight pertinent documents may be entered.

Char Length	Code List	Format	Search Key	Repeating Group	Required For IPR
6	Yes	AN	No	Yes	No

Source: Originator, PAE, or SR&QA.

Edits Performed:

- Checks for complete entry of all document element values.
- Checks code list for valid entry or blank.

Acceptable Input:

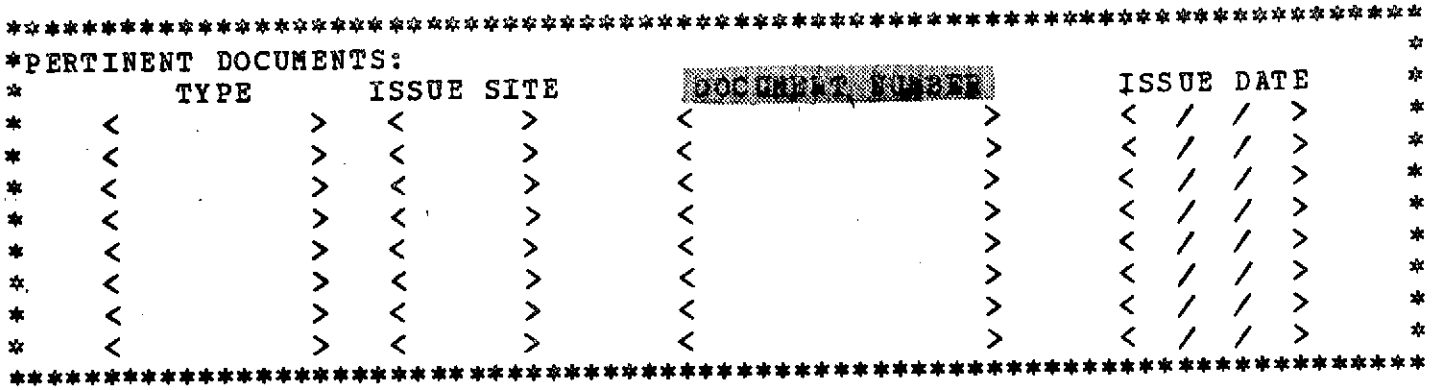
- Value entered into data base.

Unacceptable Input:

- Invalid element value - value rejected. Originator or PAE requested to submit correct value. If none submitted, element retains previous value.
- First three element values must be input. (ISSUE DATE not necessary.)

CODE LIST, LIST OF LOCATIONS

Utilize Code List, Organizations, page 2-28



Document Number

Identification number of each pertinent document. Up to eight pertinent documents may be entered.

Char Length	Code List	Format	Search Key	Repeating Group	Required For IPR
15	No	AN	No	Yes	No

Source: Originator, PAE, or SR&QA.

Edits Performed:

- Checks for complete entry of all document element values.
- No edits performed on the specific values entered for this element. System will accept any value entered by Originator or PAE up to the maximum character length.

Acceptable Input:

- Value entered into data base.

Unacceptable Input:

- First three element values must be input. (ISSUE DATE not necessary.)

PERTINENT DOCUMENTS, ISSUE DATE

```
**********************************************************************
*PERTINENT DOCUMENTS:                                                *
*        TYPE        ISSUE SITE       DOCUMENT NUMBER      ISSUE DATE *
*    <           >   <       >    <                  >    <  /  /  >  *
*    <           >   <       >    <                  >    <  /  /  >  *
*    <           >   <       >    <                  >    <  /  /  >  *
*    <           >   <       >    <                  >    <  /  /  >  *
*    <           >   <       >    <                  >    <  /  /  >  *
*    <           >   <       >    <                  >    <  /  /  >  *
*    <           >   <       >    <                  >    <  /  /  >  *
*    <           >   <       >    <                  >    <  /  /  >  *
**********************************************************************
```

Issue Date

The date of publication of the pertinent document. Up to eight pertinent documents may be entered.

Char Length	Code List	Format	Search Key	Repeating Group	Required For IPR
8	No	DATE	No	Yes	No

Source: Originator, PAE or SR&QA.

Edits Performed:

- Checks for complete entry of all document element values.
- Checks element value for proper date value and format or blank. Format is MM/DD/YY.

Acceptable Input:

- Value entered into data base.

Unacceptable Input:

- Invalid element value - value rejected. Originator or PAE requested to submit correct value. If none submitted, element retains previous value.

REMARKS BLOCK

```
**********************************************************************
*REMARKS:                                                            *
*<ENGINEERING ORDER HAS BEEN INITIATED TO REPAIR THE WALL THICKNESS  *
*AT A112 AND A95 TO CONFORM TO DESIGN SPECIFICATION.                 *
*OTHER PRECAUTIONS ARE TO INSPECT THESE MEMBERS AND OTHER            *
*SIMILAR IN SIZE PRIOR TO FABRICATION.  THE UNDERSIZED               *
*MEMBERS WERE PURCHASED FROM A MANUFACTURER NO LONGER DOING          *
*BUSINESS WITH THE PRIME CONTRACTOR.  IT IS UNKNOWN HOW THESE        *
*UNDERSIZED MEMBERS PASSED PRELIMINARY INSPECTION.                   *
*                                                                    *
*                                                                    *
*                                                                    *
*                                                                    *
*                                                                    *
*                                                                    *
*                                                                    *
*                                                                    *
*                                                                    *
*                                                                    *
*                                                                    *
*                                                                    *
*                                                                    *
*                                                                    *
*                                                                    *
*                                                                   >*
**********************************************************************
```

Remarks

Any pertinent remarks desired by SR&QA to be associated with this problem. This field will be used as working notes for this problem. Up to 24 lines of information can be entered. Any value entered by an Originator for this element will be ignored.

Char Length	Code List	Format	Search Key	Repeating Group	Required For IPR
1728	No	TEXT	No	No	No

Source: SR&QA or PAE.

Edits Performed:

- No edits performed on the data entered for this element. System will accept any data entered by SR&QA up to the maximum character length.

Acceptable Input:

- Value entered into data base.

Unacceptable Input:

- None.

ANALYSIS BLOCK

```
**********************************************************************
*ANALYSIS:                                                           *
*<STRESS ANALYSIS AND LOAD TESTS WERE PERFORMED ON WALL THICKNESS OF  *
*SIMILAR SIZE.  FAILURE AND/OR BENDING WAS DETECTED.  COMPLETE RUPTURE*
*COULD OCCUR IN SPACE ENVIRONMENT.                                    *
*                                                                    *
*                                                                    *
*                                                                    *
*                                                                    *
*                                                                    *
*                                                                    *
*                                                                   >*
**********************************************************************
```

Analysis

Results of analysis, including laboratory tests or summary of efforts made to determine nonconformance cause or explanation. Analysis includes steps taken to identify the cause and the remedies. Up to nine lines of information can be entered.

Char Length	Code List	Format	Search Key	Repeating Group	Required For IPR
648	No	TEXT	No	No	No

Source: Originator or PAE or SR&QA.

Edits Performed:

- No edits performed on the data entered for this element. System will accept any data entered by Originator or PAE up to the maximum character length.

Acceptable Input:

- Value entered into data base.

Unacceptable Input:

- None.

RESOLUTION BLOCK

```
**************************************************************************
*[redacted]                                                              *
*<THE UNDERSIZE WALL THICKNESS AT STRINGERS A112 AND A95 WAS REMOVED AND *
*REPLACED WITH WALL THICKNESS OF SPECIFIED SIZE.                         *
*                                                                        *
*                                                                        *
*                                                                        *
*                                                                        *
*                                                                        *
*                                                                        *
*                                                                        *
*                                                                        *
*                                                                        *
*                                                                        *
*                                                                        *
*                                                                        *
*                                                                       >*
**************************************************************************
```

Resolution

Summary of the problem resolution description. Up to 17 lines of information can be entered.

Char Length	Code List	Format	Search Key	Repeating Group	Required For IPR
1224	No	TEXT	No	No	No

Source: Originator or PAE or SR&QA.

Edits Performed:

- No edits performed on the data entered for this element. System will accept any data entered by Originator, PAE, or SR&QA up to the maximum character length.

Acceptable Input:

- Value entered into data base.

Unacceptable Input:

- None.

2.2 BATCH REPORTS

Batch report requirements are presented in this section of the DRD. The PAE will have the capability to request large volume reports to be produced in batch mode and to distribute the reports as needed. The specific reports produced are:

- Open Problem List (OPL).
- Full Problem Report (FPR).
- Interactive Problem Transaction Listing.
- Interactive Table Transaction Listing.
- Usage Statistics Report.
- Code Tables Listing.

All scheduled batch reports will be processed at the close of interactive processing on the scheduled date. These reports will be decollated, burst and available at the Production Coordination out-station by 8:30 A.M. the next morning. When report date falls on a holiday it will be moved to the first preceding workday. Non-scheduled batch reports will be available at the Production Coordination out-station within forty-eight (48) hours after requested.

2.2.1 Open Problem List

2.2.1.1 General. The Open Problem List (OPL) is a report of all open problems and those problems which have been resolved since the date of the last OPL. Through user options, print-out can be limited to specified projects and/or problems can be selected at the system level only. Program logic will assure that each resolved problem will

print once at the element level and once at the system level. The purpose of the OPL is to portray for management review the current problem status and other related information of all open problems.

The Open Problem List is a report on 2-part, standard size (14" x 11") computer paper and will be produced at specified intervals. Each specified project and/or system level OPL will be executed not more often than once per week. The OPL will be produced by a batch computer program, and all problems in the data base at the time that the program is run are candidates for printing. The following criteria must be met by a problem before it will be printed on the OPL:

- It must have a "YES" in data base element PAE REVIEW (indicates that this problem has been reviewed by PAE).
- It must have a "V" in data base element SUSP/VER (indicates that this problem is verified).
- If resolved, the problem must not have been printed on a previous OPL in the resolved status. (This assures that the problem is printed once in the resolved status.) The Problem Analysis and Resolution Rationale groups will be substituted for Remarks group for Resolved Problems printed on the OPL.

The order of printing of problems on the OPL will be determined by ascending sorts on the PROBLEM REPORT Number within the SUBSYSTEM code within the PROJECT code. Each change in SUBSYSTEM code will cause problem printing to

begin at the top of a new page. More than one problem within the same SUBSYSTEM code may be printed per page (with two blank lines separation) if space for the last problem on the page is sufficient to contain problem information up to the heading "PROBLEM DESCRIPTION:" (see Figure 2.2-1). Page headings will print at the top of each page only. Pages will be numbered consecutively within each project starting with page 1.

2.2.1.2 Contents and Format. Figure 2.2-1 shows the general layout of a problem on the OPL. Coded data will be converted to standard abbreviations as applicable. The definition of heading data is as follows:

- The date that the OPL program is run will be printed as the upper left-hand field of each page heading.
- The page number within the entire OPL will be printed as the upper right-hand field of each page heading.
- The PROJECT code will be printed as the first character of the second line of each page heading.
- The SUBSYSTEM code will be printed as the second through sixth characters of the second line of each page heading.
- The PROJECT will be printed in columns 42 through 49 of the second line of each page heading as an 8-character standard abbreviation retrieved from the PROJECTS code list.
- The subsystem title will be printed in columns 53 through 77 of the second line of each page as a 25-character abbreviated definition retrieved from the SS TITLE column of the SUBSYSTEMS Code List for the

value of the ORBITER or GFE SUBSYSTEM value stored in the problem.

- An 18-character field will be retrieved from the SSM/TM column of the SUBSYSTEMS Code List for the value of the ORBITER or GFE SUBSYSTEM component stored in the problem and will be printed following the heading "SSM/TM:".
- The remaining elements display on the OPL Report, Figure 2.2-1, have been described in Section 2.1.

The text fields will only use as many lines as necessary to print the data they contain. Although these text fields will be maintained internally in shorter line lengths to accommodate terminal operations, when printed on the OPL, extraneous blanks will be deleted to effect normal word spacing.

At the end of the OPL, an index/tally will be printed on unnumbered pages with the format as shown in Figure 2.2-2. If more than one page is required, the page break will occur between projects and the headings will be repeated on the next page. The abbreviated definition for the PROJECT will be printed behind the heading "PROJECT:". The abbreviated definition for each SUBSYSTEM within that PROJECT which contains open problems will be printed below the heading "SUBSYSTEM". The "PAGE" column will contain the number of the first page of that subsystem's problems in the OPL. The "NEW" column will contain a count of all the problems in that subsystem appearing on the OPL for the first time whether open or resolved. An old "resolved" problem just reopened becomes a new problem. The "RESOLVED" column will contain a count of all the problems on the OPL

in that subsystem which were resolved since the OPL was last run without the Resolved Problems Waiver. The "OPEN" column will contain a count of all the problems on the OPL for that subsystem which are currently open. The GRAND TOTAL will be printed only at the end of the index/tally, and will be a grand total of each count column.

To facilitate construction of an OPL which contains only system level problems, after the index/tally is printed, the system level problems from the two projects whose codes are "O" (Orbiter) and "R" (Government Furnished Equipment) will be printed again in OPL format. There will be no index/tally printed for this supplemental printout.

2.2.2 Full Problem Report

2.2.2.1 General. The purpose of the Full Problem Report (FPR) is to print a report of all the element values for selected problems in the data base. The user will select the problems to be printed in the Full Problem Report by designating a project and subsystem or action assignee and selecting all open problems or all closed problems. The FPR will be printed on 2-part, standard size (14" x 11") paper. The FPR will be produced by a batch computer program, on request only, and those selected problems in the data base at the time the program is run will be printed, ordered by ascending sorts on the REPORT NO. component within the SUBSYSTEM code within the PROJECT code. Each problem will begin printing at the top of a new page. If a problem contains sufficient information to require two pages, the printing of the first page will be broken only

after completion of the REMARKS component (or the ANALYSIS component, if it will all fit on the first page).

2.2.2.2 Contents and Format. Figure 2.2-3 shows the general layout of a problem on the FPR. Coded data will be converted to standard abbreviations as applicable. The definition of leading data is as follows:

- The date that the FPR program is run will be printed as the upper left-hand field of each page.
- The page number within the entire FPR will be printed as the upper right-hand field of each page.
- The PROJECT code will be printed as the first character of the second line of a problem printout.
- The SUBSYSTEM code will be printed as the second through sixth characters of the second line of each page heading. If the subsystem is not known or given, this area will be blank.
- The PROJECT will be printed in columns 42 through 49 of the second line of each page heading as an 8-character standard abbreviation retrieved from the PROJECTS Code List.
- The subsystem title will be printed in columns 53 through 77 of the second line of each page as a 25-character abbreviated definition retrieved from the SS TITLE column of the SUBSYSTEMS Code List for the value of the ORBITER or GFE SUBSYSTEM value stored in the problem.
- An 18-character field will be retrieved from the SSM/TM column of the SUBSYSTEMS Code List for the value of the ORBITER or GFE SUBSYSTEM component

stored in the problem and will be printed following the heading "SSM/TM:".

- The remaining elements display on the Full Problem Report, Figure 2.2-8, have been described in Section 2.1.

The Problem Description, Remarks, Analysis, and Resolution text fields will only use as many lines as necessary to print the data they contain. Although these text fields will be maintained internally in shorter line lengths to accommodate terminal operations, when printed on the FPR, extraneous blanks will be deleted to effect normal word spacing. Undefined codes will print as codes on the FPR.

2.2.3 Problem Transaction Listing

2.2.3.1 General. The purpose of the Problem Transaction Listing report is for verification and chronological recording of all changes made to PDS data base. The report is produced daily on 2-part, standard size (14" x 11") computer paper. The Problem Transaction Listing will be produced by a batch computer program, and all problem transactions recorded that altered the data base during the interactive operation for that day will be printed. This report is for the PAE review only.

2.2.3.2 Contents and Format. Figure 2.2-4 shows the general layout of the Interactive Problem Transaction Listing. The data printed will be as shown on the format. In addition, the date of the transactions will be printed in the upper left-hand field of each page heading, and the page

number of the report will be printed as the upper right-hand field of each page heading. At the conclusion of the transaction listing, a summary table of the total number of transactions for each user ID will be printed.

2.2.4 Table Transaction Listing

2.2.4.1 General. The Table Transaction Listing is a report produced monthly of all the changes made to Code Tables by the PAE. The report is produced on 2-part, standard size (14" x 11") computer paper, on request but no more than once a month. The Table Transaction Listing report will be produced by a batch computer program, and all table transactions recorded that altered a code table during a one month period will be printed. This report is for the PAE review only.

2.2.4.2 Contents and Format. Figure 2.2-5 shows the general layout of the Interactive Table Transaction Listing. The data printed will be as shown on the format. In addition, the date the report was produced will be printed in the upper left-hand field of each page heading and the page number of the report will be printed in the upper right-hand field of each page heading. At the conclusion of the report, a summary of the total number of Table transactions will be printed.

2.2.5 Usage Statistics Report

2.2.5.1 General. The purpose of the Usage Statistics Report is to optimize system usage and resource availability by listing the computer accounting units used, the number of

security violations incurred, and the number of editing errors committed by each user. The Report is printed on 2-part, standard size (14" x 11") paper, on the first day of each month. If the first falls on the weekend, the report will be due on Monday. The Usage Statistic Report will be produced by a batch computer program and all usage data recorded during a one month period will be printed. This report is for the Quality Project Engineering review.

2.2.5.2 Contents and Format. Figure 2.2-6 shows the general layout of the Usage Statistics Report. The information printed is as shown on the format. In addition, the date the report was produced will be printed in the upper left-hand field of each page heading and the page number of the report will be in the upper right-hand field of each page heading. The month of the Usage statistics will be part of the heading, and a summary total will be printed at the conclusion.

2.2.6 Code List Report

2.2.6.1 General. The purpose of the Code List Report is to present either a selected code list or all code lists in batch mode. All users may request this report, but only the PAE can perform updates or initiate new lists. The code lists will be produced upon request by a batch computer program and printed on 2-part, standard size (14" x 11") paper.

2.2.6.2 Contents and Format. The code list data printed will be exactly as entered and stored for each particular list in the data base. The code lists have been

presented and described in detail in Section 2.1. Code lists presently required by the PDS are:

Code Lists

- Projects
- Subsystems
- Problem Status
- Criticality of Recurrence
- Organizations
- Test/Operation
- Problem Cause
- Failure Mode
- Condition of Problem Material
- Prevalent Conditions
- Time/Cycle Units
- Disposition
- Document Type
- Level
- Type
- SUSP/VER
- INITIAL/SUBSEQUENT
- PAE REVIEW

FIGURE 2.2-1

12/05/74 JSC SHUTTLE OPEN PROBLEM LIST PAGE 2911
OSFF ORBITER - STRUCT FUSELAGE FWD COMPT.

ACTION ASSIGNEE DICK PERRY S&MTM ES2/G.J.SANDARS

PROBLEM IDENTIFICATION

LEVEL / ELEMENT	TYPE / UNSAT COND	VEHICLE ON	CAUSE	FAIL MODE	TEST/OPER	PREVAIL. COND.	LOCATION	OCCURRED DATE	REPORT NUMBER
		017	REQ-MFG-TOOL	FAILS CLOSED	OAL	ACCELERATION	RISD	07/31/74	577-63-41-55

HARDWARE IDENTIFICATION	PART NUMBER	PART NAME	MFG	SERIAL/LOT	DATE/TIME UPDATED	REFERENCE
TEST ARTICLE	V070-332021-C01	SKIN PANEL	RISD	439990007268	08/05/74	1234567890
NONCONFORMING ARTICLE						
NEXT HIGHER ASSEMBLY					RESOLUTION DATE	WORK UNIT CODE
PROBLEM EFFECTIVITY					EST 09/01/74	432198765432

MISSION NUMBER	00227	00228	00231	00232	00233	00234	00237	00238
VEHICLE NUMBER	017	018	010	019	017	021	018	020
CRIT - STATUS	2- OPEN	2- OPEN	1- OPEN	3- EXPL	2- OPEN	3-CLOSED	2- OPEN	3-CLOSED

PROBLEM DESCRIPTION

XXXXXX----
XXXXXX----
XXXXXX----
XXXXXX----
XXXXXX---- ----XXXXXX ----XXXXXX

REMARKS

XXXXXX----
XXXXXX----
XXXXXX----
XXXXXX----
XXXXXX----
XXXXXX----
XXXXXX----
XXXXXX----
XXXXXX----
XXXXXX----
XXXXXX----
XXXXXXXXXXXX

Figure 2.2-2

OPL INDEX/TALLY

PROJECT: OBBITER		PROBLEM COUNT		
SUBSYSTEM	PAGE	NEW	RESOLVED	OPEN
GN&C STAR TRACKER	1000	5	15	10
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.
INSTRUMENTATION	1412	5	15	10
	TOTALS:	500	1000	750
PROJECT: SRB				
ANTENNA EQUIPMENT	2001	10	20	15
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.
COMM EQUIPMENT - KU-BAND	2112	10	20	15
		100	200	150
PROJECT: ET				
COMM EQUIPMENT - S-BAND	5001	5	15	10
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.
INSTRUMENTATION	6001	5	15	10
		500	1000	750
	GRAND TOTALS:	1100	2200	1650

FIGURE 2.2-3

12/05/74 JSC SHUTTLE FULL PROBLEM REPORT PAGE 2954
OSEF ORBITER - STRUCT FUSELAGE FWD COMPT

ACTION ASSIGNEE CICK PERRY SSM/TM ES2/G.W.SANDARS

PROBLEM IDENTIFICATION

LEVEL	TYPE	VEHICLE CN	CAUSE	FAIL MODE	TEST/OPER	PREVAIL. COND.	LOCATION	OCCURRED DATE	REPORT NUMBER
ELEMENT	UNSAT CONC.	017	REQ-MFG-TOOL	FAILS CLOSED	QAL	ACCELERATION	RISD	07/31/74	577-43-41-55

CRITICALITY	INIT/SUBS.	SUSP/VER.	COND. MAT.	HDW. DISP.	TEST DOCUMENT NUMBER	TIME/CYC.	DATE/TIME RECEIVED	REFERENCE
2-MISSION	INIT	SUSP	CIRCUIT OPEN	SCRAP	123456789012345	00008T-C	08/01/74	123456789

HARDWARE IDENTIFICATION	PART NUMBER	PART NAME	MANUFACTURER	SERIAL/LOT	DATE/TIME UPDATED	WORK UNIT CODE
TEST ARTICLE	VC70-332021-0C1	SKIN PANEL	RISD	439990007268	08/05/74	432198765432
NONCONFORMING ARTICLE	R211-873262-017-2231	SKIN PANEL RIB	RISD	647854345367		
NEXT HIGHER ASSEMBLY					RESOLUTION DATE	STATUS
CONTRACT END ITEM					SCH 09/01/74	

PROBLEM EFFECTIVITY — ACT 09/09/74 — CONSTRAINT

MISSION NUMBER	00227	00228	00231	00232	00233	00234	00237	00238	AWAIT SPECIF
VEHICLE NUMBER	017	C18	020	019	017	021	018	020	PAE REVIEW
CRITICALITY	2-MISSION	2-MISSION	1-SAFETY	3-OTHER	2-MISSION	3-OTHER	2-MISSION	3-OTHER	
STATUS	OPEN	OPEN	OPEN	EXPL	OPEN	CLOSED	OPEN	CLOSED	

PERTINENT DOCUMENTS

TYPE	ISSUE SITE	DOCUMENT NUMBER	ISSUE DATE	TYPE	ISSUE SITE	DOCUMENT NUMBER	ISSUE DATE
TEST RPT	RILAD	123456789012345	06/24/73	ANAL RPT	JSC	234567890123456	07/23/73
DISC RPT	RISD	345678901234567	04/21/73	ECP/RECP	RISD	456789012345678	08/15/74
PROB, PREV	RILAD	567890123456789	01/28/74	MCR	JSC	678901234567890	03/05/74
RES RQT	RILAD	789012345678901	06/24/74	PROB, RPT	RILAD	890123456789012	06/18/74

PROBLEM DESCRIPTION

XXXXXX---- ----XXXXXX
XXXXXX---- ----XXXXXX
XXXXXX---- ----XXXXXX
XXXXXX---- ----XXXXXX

REMARKS

XXXXXX---- ----XXXXXX
XXXXXX---- ----XXXXXX
XXXXXX---- ----XXXXXX
XXXXXX---- ----XXXXXX

ANALYSIS

XXXXXX---- ----XXXXXX
XXXXXX---- ----XXXXXX
XXXXXX---- ----XXXXXX
XXXXXX---- ----XXXXXX

RESOLUTION

XXXXXX---- ----XXXXXX
XXXXXX---- ----XXXXXX
XXXXXX---- ----XXXXXX
XXXXXX---- ----XXXXXX

Figure 2.2-8

DATE 12/30/75 JSC SHUTTLE - VALID TRANSACTION LISTING PAGE 1234
PROJECT - ORBITER

TIME	USER ID	TYPE OF TRANS	PROBLEM NUMBER	TABLE ABBREVIATION	PREVIOUS ELEMENT VALUE	CURRENT ELEMENT VALUE
105945	SR/QA	CHANGE	100000000005	COND/MAT x	BENT x	MELTED x
111457	SR/QA	ADD	100000000015	FAT/FAIL	x	FATIGUE FAILURE x

TOTAL NUMBER OF TRANSACTIONS

USER	ADD	CHANGE	DELETE	TOTAL
SR/QA x	x 100	x 200	x 150	x 450

GRAND TOTAL
VALID TRANSACTION LISTINGS

PROJECT	ADD	CHANGE	DELETE	TOTAL
ORB x	x 30	x 110	x 10	x 150

Figure 2.2-5

DATE 12/31/75

PAGE 1234

VALID TABLE TRANSACTION LISTING
TABLE - CONDITION OF MATERIAL

DATE	TIME	TYPE OF TRANS	EXPRESS CODE	STANDARD ABBREVIATION		DEFINITION	
12/15/75	023315	CHANGE	DB	BENT	x	DAMAGED - BENT/TWISTED	x
.							
.							
.							

TOTAL NUMBER OF TRANSACTIONS

ADD	CHANGE	DELETE	TOTAL
x 100	x 200	x 30	x 330

GRAND TOTAL
VALID TABLE TRANSACTION LISTINGS

ADD	CHANGE	DELETE	TOTAL
x 1000	x 300	x 100	x 1400

Figure 2.2-6

DATE 12/31/75 PAGE 1234 x

USAGE STATISTICS FOR DECEMBER

USER ID			TIME UNITS		SECURITY VIOLATIONS		EDITING ERRORS		QUERIES		TRANSACTIONS	PAGES PRINTED
SE/QA	x	x	10	x	1	x	1	x	5	x	5	346
.												
.												
.												
TOTALS		x	1000	x	11	x	21	x	505	x	705	284,670

2.3 INTERACTIVE DISPLAYS

This section presents the requirements for interactive problem data displays including the JSC Shuttle Problem Standard Display and the JSC Shuttle Problem Express Display. The ability to enter and display Standard Abbreviation Code in the Standard Display and Express Codes in the Express Display is the major difference between these two displays. Otherwise, the problem data elements presented are identical on both forms. The title block heading is slightly different on the Express Display form in that only the Project Express Code is displayed and the subsystem definition is not displayed.

In addition to the two problem displays, the Open Problem List display, the Abbreviated Problem display, the Interactive Code Listing displays, and the online predefined displays are available.

2.3.1 JSC Shuttle Problem Standard Display

2.3.1.1 General. The JSC Shuttle Problem Standard Display is one of two similar forms used to input problem data to the system and to interactively display data. The Standard Display constitutes a single problem data report and has the ability to display all the element values for a particular problem described in section 2.1. Coded values are converted to standard abbreviation where applicable.

2.3.1.2 Contents and Format. Section 2.1 contains the general layout of a problem in Standard format. The data displayed will reflect what has been entered in the data

base for that particular problem, with the following exceptions:

- The current date will be displayed in the upper left-hand field on each page.
- The page number of the display (page 1, 2, or 3) will be shown in the upper right-hand field of a page.
- The 25-character abbreviated definition of the SUBSYSTEM (retrieved from the SUBSYSTEMS Code List) will be displayed in the area following the "dash" on the second line on each page.
- The value displayed in the "SSM/TM:" field will be retrieved from the SUBSYSTEMS Code List.
- The title block heading, consisting of the date, page, date and time of last update, and the problem report number, is repeated on the second and third page of the display.
- Coded values will be displayed in the Standard Abbreviation Code were applicable.

The values displayed for the other Problem Data Components on the form have been described in detail in Section 2.1. The headings will be displayed for all elements whether any data exists for an element or not.

For Problem Data retrieval and display, the PROBLEM DESCRIPTION, REMARKS, ANALYSIS, and RESOLUTION text fields will only use as many lines as necessary to display the data they contain. The REMARKS text will be displayed after PROBLEM DESCRIPTION if the complete text will fit on page 1, otherwise REMARKS will be displayed on page 2. Similarly,

the RESOLUTION text field will be displayed after ANALYSIS if the complete text will fit on page 2, otherwise, the RESOLUTION text field will be displayed on page 3. This narrative compression does not apply during the update mode.

2.3.2 JSC Shuttle Problem Express Display

2.3.2.1 General. The Express form of the JSC Shuttle Problem Display is the second of two forms used to input problem data to the system and to interactively display data. The Express Display constitutes a single problem data report and has the ability to display all the element values for a particular problem; however, the coded values are not converted as they are in the Standard Form.

2.3.2.2 Contents and Format. Section 2.1 contains the general layout of a problem in Express format. The data displayed will be in coded form as entered in the data base for that particular problem, with the following exceptions:

- The current date will be displayed in the upper left-hand field on each page.
- The page number of the display (page 1, 2, or 3) will be shown in the upper right-hand field of a page.
- The project Express code will be displayed on the second line after "PROJECT".
- The value displayed in the "SSM/TM:" field will be retrieved from the SUBSYSTEMS Code List.
- The title block heading consisting of the date, page, date and time of last update, and the problem

report number will be repeated on the second and third page of the display.

- All coded values will be displayed in the Express Code for the particular element.

The values displayed for the other elements on the form have been described in detail in section 2.1. The heading will be displayed for all elements whether any data exists for an element or not. Narrative compression will be effected as described under Standard Display Section 2.3.1.2.

2.3.3 Code List Display

2.3.3.1 General. The code lists described in Section 2.1 may be accessed and displayed by any user of the system and sorted by designated parameter in ascending order. However, only the PAE can update code list entries. New code lists will be established by the Data Base Manager upon written request from the PAE.

2.3.3.2 Contents and Format. The user may display a desired code table in two ways. First, he can request that the entire code list for any given data element field be displayed. Or, he may enter the Express code or the Standard Abbreviation Code and have the element definition, Standard Abbreviation Code, Express code, and Code list title displayed.

2.3.4 Abbreviated Problem Display

2.3.4.1 General. The purpose of the Abbreviated Problem Display (APD) is to display the data for six significant components for any Project-Problem Report Number requested. The requestor will input project and problem number. The six components displayed for a specific Project and Problem Report Number are the SUBSYSTEM, LEVEL, CAUSE, ACTION ASSIGNEE, DATE/UPDATED and ACTUAL RESOLUTION DATE. The word -NULL- will be displayed for any component that does not have a value entered in the data base. Each page of output will be numbered and the date/time of the request will be printed at the top of each page.

2.3.4.2 Contents and Format. The data displayed will represent what has been entered in the data base for the particular Project and Problem Report Number. Project, Level, and Cause codes will be converted to Standard Abbreviation.

2.3.5 Element Display

The Element Display provides the user with the capability to display exactly what value has been entered and stored in the data base for an element. To request a display of an element value, the user must enter the Project, Problem Report Number, and the specific element name. The element will be displayed in both code and standard abbreviation value.

2.3.6 Group Display

The Group Display provides the user with the capability to display element values entered in the data base for each of the major groups of the JSC Shuttle Problem Display. The element may be displayed in either the Standard Abbreviation or Code values. To request a group display, the user must identify the project number, problem report number, and the specific group title as defined in section 2.1. The format of the display will be as presented in section 2.1.

2.3.7 Predefined Online Queries

The predefined online queries provide the user with the capability to display data and to make direct queries on the data stored in the data base. The user will be able to search selected data fields for specific data values, perform boolean logic to identify problem reports from which data is to be selected, sorted, and displayed. As the need for new or different queries becomes apparent, after the system becomes operational, a procedure will be established between the User and IDSD to add the needed query capabilities to the system. Online reports will be limited by line count. The number of lines allowed will be determined by the SPIMS working group. Until such determination has been made, report output which exceeds 125 lines will be directed, in its entirety, to the computer site line printer. Element values will be converted to Standard Abbreviations where possible.

The following Online Displays have been identified for PDS. All online displays will be page numbered and the date/time of the request will be printed at the top of each page. All headings will be repeated on multiple pages.

Figure 2.3-1 contains examples of each of the following reports:

- PAE Problem Review List
  Available: For PAE only.
  Input: Report Request.
  Output: Project, Problem Report Number, Action Assignee, and Date/Time Received.
  Selection: All problems which have not been reviewed by PAE.
  Sorted: By Problem Report Number within Project.

- Open Problem Summary With Respect to Time
  Available: For all Users.
  Input: Project, Subsystem, Date Received(1), and Date Received(2).
  Output: Problem Report Number, Cause, Type, Level, Suspect/Verified, Failure Mode, Criticality, and Date Received.
  Selection: All open reviewed problems in the specified Project and Subsystem whose Date Received is greater than or equal to the specified Date Received (1) and less than or equal to Date Received (2).
  Sorted: By Problem Report Number.

- Subsystem Problem List

Available: For all Users.
Input: Project, Subsystem(1), and Subsystem(2).
Output: Subsystem, Problem Report Number, Suspect/Verified, Level, Date/Time Updated, and Actual Resolution Date.
Selection: All reviewed problems (open, closed, and explained) in the specified Project and whose Subsystem spans Subsystem(1) to Subsystem(2).
Sorted: By Problem Report Number within Subsystem.

- Action Assignee Summary - Open Problems
  Available: PAE and SR&QA.
  Input: Action Assignee.
  Output: Project, Subsystem, Problem Report Number, Suspect/Verified, Level, Date/Time Updated, and Scheduled Resolution Date.
  Selection: All reviewed open problems which contain the specified Action Assignee and no date in the Actual Resolution Date.
  Sorted: By Problem Report Number within Subsystem within Project.

- Action Assignee Summary - Resolved Problems
  Available: PAE and SR&QA.
  Input: Action Assignee.
  Output: Project, Subsystem, Problem Report Number, Status, Level, Date/Time Updated, and Actual Resolution Date.

Selection: All resolved problems which contain the specified Action Assignee.

Sorted: By Problem Report Number within Subsystem within Project.

- Part Number Searches

  Available: For all Users.

  Input: Part Number, Suspect/Verified (or both).

  Output: Project, Subsystem, Problem Report Number, Part Name, Actual Resolution Date, and Indicator:
  Procedure Hardware - PH
  Nonconforming Article - NCA
  Next Higher Assembly - NHA
  Contractor End Item - CEI

  Selection: All reviewed problems, verified or suspected (or both), which contain the specified Part Number.

  Sorted: By Problem Report Number within Subsystem within Project.

- Part Name Indices

  Available: For all users.

  Input: Project, Subsystem, suspect/verified (or both).

  Output: Part Name, Part Number, Problem Report Number, Actual Resolution Date, and Indicator:
  Procedure Hardware - PH
  Nonconforming Article - NCA
  Next Higher Assembly - NHA
  Contractor End Item - CEI

Selection: All reviewed problems, verified or suspected (or both) in the specified Project and Subsystem which contains data in the Part Name or Part Number components.

Sorted: By Part Name.

Figure 2.3-1

PREDEFINED ONLINE QUERY FORMATS

06/07/75 ABBREVIATED PROBLEM DISPLAY PAGE 100
115915

SUB SYS	ACT-RES DATE	LEVEL	DATE UPDATED	ACTION ASSIGNEE	CAUSE
ORB	06/07/75	SYSTEM	06/07/75	D.R.JONES	MFG-WOR-FIT

06/07/75 PAE PROBLEM REVIEW LIST PAGE 100
115915

PROJECT	REPORT-NUMBER	ACTION-ASSIGNEE	DATE-RECVD	TIME-RECVD
ORBITER	10059-B	D.R.JONES	06/07/75	115915

06/07/75 OPEN/SUSPECT PROBLEM SUMMARY PAGE 100
115915

REPORT NUMBER	CAUSE	TYP	LEVL	SUS VER	FAILURE MODE	CRITCALTY	DATE RECEIVED
10059-B	MFG-WOR-FIT	F	S	V	OP DELAYED	2-MISSION	06/07/75

06/07/75 SUBSYSTEM PROBLEM LIST PAGE 100
115915

SUBSYSTEM	REPORT NUMBER	SUS VER	LEVEL	DATE UPDATED	TIME UPDATED	ACT-RES-DATE
SV	10059-B	VER	SYSTEM	06/07/75	115915	06/08/75

06/07/75 ACTION ASSIGNEE SUMMARY - OPEN PROBLEMS PAGE 100
115915

PROJECT	SUB SYS	REPORT NUMBER	SUS VER	LEVEL	DATE UPDATED	TIME UPDATD	EST-RES DATE
ORBITER	SV	10059-B	VER	SYSTEM	06/07/75	115915	06/08/75

Figure 2.3-1 (Concluded)

06/07/75 ACTION ASSIGNEE SUMMARY - RESOLVED PROBLEMS PAGE 100
115915

PROJECT	SUB SYS	REPORT NUMBER	STATUS LEVEL VER	STATUS LEVEL SYSTEM	DATE UPDATED	TIME UPDATD	ACT-RES DATE
ORBITER	SV	10059-B			06/07/75	115915	06/08/75

06/07/75 PART NUMBER SEARCH PAGE 100
115915

PROJECT	SUB SYS	REPORT NUMBER	PART-NAME	IND	ACT-RES DATE
ORBITER	SV	10059-B	LEADING EDGE SPAR	NCA	06/08/75

06/07/75 PART NAME INDICES PAGE 100
115915

PART-NAME	IND	PART-NUMBER	REPORT NUMBER	ACT-RES DATE
LEADING EDGE SPAR	NCA	37-V-10794-43	10059-B	06/08/75

2.4 SECURITY

Overall System 2000 security will be the sole responsibility of the Data Base Manager. He will be responsible for providing data base back-up and reloading. Therefore, only the data base manager will have access to the system 2000 master password, and consequently he will have responsibility for assigning all system 2K passwords and authorities at the element, problem and string level.

PDS input and access security will be provided by a system of user identifiers and passwords. Control and assignment of the user ID and user password will be the responsibility of PAE. One user ID will be assigned to each individual having a requirement for access to data in the PDS. This ID will not be classified and will be utilized in statistical and usage reports. Corresponding to each user number or group of user numbers, will be a classified user password which will be known only to the users, PAE and the Data Base Manager. When the PAE assigns the user password he will furnish this information to the Data Base Manager along with the authorities to be assigned to the password. The data base manager will then assign the user password to the S2K group password which defines the correct authorities. This will allow PAE to change the user password without affecting the S2K password and associated authorities should the user password become compromised. It will be necessary for PAE to notify the Data Base Manager when changes in User Passwords and/or authorities are required.

In order to insure that security requirements are fulfilled, it will be necessary for the user to state intent, (i.e., add new problem, update existing problem, or report generation), for each transaction. This information will be utilized to activate the proper security routine as well as the proper form display. For a new problem entry the security routine will insure that the originator has write authority for all entered elements. If a user attempts to update an existing problem or access a problem for report purposes the security routine will again insure that he has both element and problem authority.

Security requirements have been classified in six groups. Group one consists of the PAE only, who will have unqualified access to all problems, data elements, code tables and reports. The PAE may input new problems, update existing problems, update code tables, and access any report. PAE may reassign problem update authority for a particular problem by changing a security element which will be assigned to each problem. This is a required interface between security group four and six, since security group six may input problems on any project but may not be responsible for the problem resolution. In addition the PAE may request the Data Base Manager to change other user passwords.

Security group two will have access to read any problem and associated data elements in the data base as well as the code tables. They may not enter new problems, update existing problems, nor change code table information. In addition, the type of queries allowed will be restricted by

limiting the predefined reports executable under their security code.

Group three will have unlimited read access to all problem reports, data elements, queries, and code tables. They will be limited to input/update of certain data elements for a given problem as outlined in table 2.4.2. Group three may not enter a new problem or update code tables.

Group four users will have read/update access to problems which they input and to problems which have been assigned to them by PAE. They may not access problem data input by another user except by special permission of the PAE. (See group five discussion.) Users in this group may originate problem reports associated with their hardware and update these data as required. They may not input or update data elements which are machine generated or reserved to PAE.

Group four users will be further subdivided on a father-son relationship. As an example, a prime contractor will be assigned one password by PAE which will correspond to one S2K password with its associated authorities. However, there may be several major subcontractors who will input problem data. PAE will assign each of these subcontractors a unique password. All of these passwords will map into the prime contractor's password. A delimiter, based on user password will be stored in each problem thereby allowing a second partition of the data base problems. This would allow the prime contractor to read/update all problems for his group, while at the same

time limiting the subcontractor to his unique problems. Grouping of the main users and the father-son relationship for prime/subcontractors is necessary since S2K will allow only 20 passwords per data base. Group four users may access code tables but will not be allowed to change or add code tables. They will also be limited in the execution of reports.

Group five is a special security group consisting of the same users as group four. This security group is identified to allow PAE the option of granting permission to one contractor to read problems associated with another contractor's hardware. The security of this group will be controlled at the contractor or subcontractor level by PAE, i.e., permission to read another group's problems, constitutes permission to read all data problems. Group five security will not allow input of new problems, update of existing problems, or access to code tables.

Group six will have read and input authority for all problems and projects. When PAE reviews problems input by group six, they may reassign update responsibility to a group four contractor by changing the problem security element. After a problem update responsibility has been changed, group six may not update the problem but will retain read authority. Group six users may not change code tables.

A complete recap of authorities to be initially assigned to the user passwords are listed in tables 2.4.1 through 2.4.4. These tables list problem/element/table

authority; detail data element authority and report authority respectively.

Table 2.4.1

PROBLEM/ELEMENT/TABLE AUTHORITY

Group	Problem Authority			Table Authority	
	Element Read	Element Update	Interactive Report	Read	Update
1	ALL	ALL except machine gener.	ALL	ALL	ALL
2	ALL	NONE	Assigned by Report	ALL	NONE
3	ALL	Narrative Fields only	ALL	ALL	NONE
4	ALL for own problems and subcontractor's problems. Subcontractors limited to own problems. NONE for others problems	Assigned by element for own problems. None for others problems.	Assigned by Report and problem security element	ALL	NONE
5	ALL for others problems when authority given by PAE	NONE	Assigned by Report	NONE	NONE
6	ALL	ALL for initial input except machine generated and PAE reserved elements. For update - as assigned by PAE	Assigned by Report	ALL	NONE

Table 2.4.2

Data Element Security by Group

The problem data elements listed below are in the same order as presented in section 2.1. An "X" under the read column indicates that the user will have read only access to these elements. An "X" under the update columns means that the user will have read, add (new problem) or change authority.

	Element	Group 1 Read	1 Update	2 Read	2 Update	3 Read	3 Update	4 Read	4 Update	5 Read	5 Update	6 Read	6 Update
Title Block:	Project		X		X		X			X	X		X
	Subsystem Name	Computer generated											
	Action Assignee		X		X		X		X		X		
	SSM/TM	Computer generated											
Problem Ident:	Subsystem		X		X		X			X	X		X
	System/Element		X		X		X			X	X		X
	Report No.		X		X		X			X	X		X
	Problem Status	Computer generated with PAE override											
	Type		X		X		X			X	X		X
	Reference No.		X		X		X			X	X		X
	Vehicle		X		X		X			X	X		X
	Criticality		X		X		X			X	X		X
	Work Unit		X		X		X			X	X		X
	Location		X		X		X			X	X		X
	Problem Status		X		X		X			X	X		X
	Occurrence Date		X		X		X			X	X		X
	Test/Operation		X		X		X			X	X		X
	Init./Subs.		X		X		X			X	X		X
	Date/Time Rcd.	Computer generated											
	Cause		X		X		X			X	X		X
	PAE Review		X										
	Date/Time last trans.	Computer generated											
	Failure Mode		X		X		X			X	X		X
	Estimated Date		X		X			X		X	X		X
	Actual Date		X		X		X		X		X	X	
	Condition Mat.		X		X		X			X	X		X
	Prev. Cond.		X		X		X			X	X		X
	Time/cycles		X		X		X			X	X		X
	Disposition		X		X		X			X	X		X
	Test Document No.		X		X		X			X	X		X
	Constraint		X		X		X		X		X	X	
Hardware Ident: (same for all)	Part Number		X		X		X			X	X		X
	Part Name		X		X		X			X	X		X
	Manufacturer		X		X		X			X	X		X
	Serial/Lot No.		X		X		X			X	X		X

Table 2.4.2 (Concluded)

Data Element Security By Group

	Element	Group 1 Read	1 Update	2 Read	2 Update	3 Read	3 Update	4 Read	4 Update	5 Read	5 Update	6 Read	6 Update
Problem Effectivity:	Mission No.		X	X		X			X	X			X
	Vehicle No.		X	X		X			X	X			X
	Criticality		X	X		X			X	X			X
	Status		X	X		X			X	X			X
Problem Description:	Problem Description		X	X		X			X	X			X
Pertinent Documents:	Type		X	X			X		X	X			X
	Issue Site		X	X			X		X	X			X
	Document No.		X	X			X		X	X			X
	Issue Date		X	X			X		X	X			X
Remarks:	Remarks		X	X			X	X		X			X
Analysis:	Analysis		X	X			X		X	X			X
Resolution:	Resolution		X	X			X		X	X			X

2.5 OPERATIONAL REQUIREMENTS

2.5.1 General

The PDS is required to operate via remote terminals to provide interactive input of problem data, interactive display of problem data, and in the batch mode to produce lengthy reports. In the interactive mode, PDS must accommodate up to ten (10) users concurrently in either the update or query mode. Problem Reporting consists of submitting initial and follow-on data concerning Shuttle hardware problems to a central facility. The central facility at JSC is the Problem Assessment Engineering (PAE) Group who is responsible for collecting, updating, maintaining, reporting and tracking of problem data. Reporting agencies/users who have access to a terminal will input data directly to the PDS data base, whereas reporting agencies/users without terminals will supply the pertinent data to PAE for input to PDS. Likewise, users with terminals will be able to display interactive reports, while the PAE will be responsible for supplying hardcopy reports to users without terminals. In addition, PDS will be required to perform certain security, accounting and transaction logging functions. Security requirements are covered separately in section 2.4.

2.5.2 Interactive Requirements

2.5.2.1 Initial Problem Reporting. All initial problem data will be input to PDS via terminals utilizing form mode input. Two forms or modes of input are available to the Originator: Express or Standard. The format,

content and data element description for each mode is thoroughly discussed in section 2.1. The basic difference in these two modes is that the Express mode utilizes codes for many data elements, whereas the Standard mode utilizes meaningful abbreviations, or full text.

The Originator must indicate intent, i.e., a new problem entry, the mode (express or standard) to be used, and proposed Project and Report Number to initiate a new entry. If that Project/Report Number exists and there is no security violation, the problem will be displayed. If no duplication of report number exists, PDS will then display page one of the JSC Shuttle Problem Input Display in the proper mode with the project/report number previously identified. The Originator will then enter the new problem data for Page 1 and transmit the data. After transmission the input data will be edited in accordance with the security checks outlined in section 2.4 and the data edits outlined in section 2.1. All errors will be displayed and the originator will have an opportunity to make corrections. Non-corrected data will retain a null value except for Initial Problem Required (IPR) elements. Should the originator not input or correct IPR elements, the problem will be rejected, the originator notified of the non-acceptance, and PAE will be notified of the aborted attempt on the Transaction List. Assuming page 1 is accepted, the originator may then continue to input data on page 2 and page 3, transmitting each page and making corrections as required sequentially; or he may enter another new problem if no data exists for pages 2 and 3. All accepted data will be echoed at the terminal to verify proper data transmission and processing.

2.5.2.1 Problem Data Updating. Updating (changes or deletions) of problem data will be accomplished in much the same manner as the inputting of initial problems. The originator must indicate intent and the mode (express or standard) to be used, and identify the problem to be updated, by problem number and project. A security check will be performed to insure that the user has problem authority. If the user does not have problem authority then the attempted violation will be displayed to the user and noted for report to PAE; otherwise, page 1 of the JSC Problem Display including all current element values for the problem will be displayed. The user may then proceed to change values in accordance with the authorities discussed in section 2.4, transmitting the entire page of data. The software will determine the changes made and edit all new data in accordance with the data element edits outlined in section 2.1. As with the initial problem input, element security and data edits will be performed after each transmission, and the user will be notified of the results. The user may then correct any input errors; however should errors not be corrected the element value will retain its original value. All data for each page containing changes will be echoed at the terminal to verify proper data transmission and processing.

A "Suspect" problem may be deleted either by PAE or the Originator of the problem. "Verified" problems cannot be deleted.

Single element or repeating group element updates may be accomplished by utilizing a predefined display/update option. The user will input the problem number, project,

element name, and new element value. The same security and edit checks will be performed as described above and in section 2.1 and 2.3. Acceptance of the change will be displayed at the terminal in the form: Element _____ value changed from _____ to _____.

All changes or deletions will be reported to PAE via the transaction log on a daily basis.

2.5.2.3 Online Searches/Reports. The user may display data utilizing several options. One of the primary ways for displaying problem data will be the utilization of the JSC Shuttle Problem Display as described in section 2.1. The user will state intent to display, identify the problem to be displayed by Project and problem number, and choose one of the two display options, either standard or express. The narratives in the display mode will be compacted, i.e., all blank lines removed. The "Remarks" normally displayed on page 2 of the JSC Shuttle Problem Display will be moved to page 1 where space permits, and the "Resolution" narrative normally on page 3 will be moved to page 2 where possible.

Predefined searches and the associated reports are defined in section 2.3. The user may activate the searches from the terminal consistent with security authorities outlined in section 2.4. Should the user require interactive reports which have not been previously defined he may request them from PAE. Upon approval of PAE the request will be forwarded to the Data Base Manager for consideration who will normally insure that the request is fulfilled within 48 hours.

2.5.2.4 Code List Display/Maintenance. All PDS users will be able to display and cross reference code lists described in section 2.1 as outlined in section 2.3. Primarily these capabilities consist of displaying entire lists and sorting the list in ascending order by component, displaying individual elements in a list, or inputting a code or abbreviation and receiving the corresponding code or abbreviation.

Only PAE will have the authority to modify existing code list. PDS will have the capability to handle changes to code list during normal PDS operational time via terminal input. The addition of new code list must be coordinated with the Data Base Manager.

2.5.3 Accounting Requirements

The system is required to support maintenance of statistical data on a per user basis. This requirement will include gathering available statistics, such as number of security violations, system seconds used, editing errors, number of transactions by user and accumulating them for a monthly report. This will be accomplished through the use of programs written to gather and print these statistics. Please see figure 2.2-6.

2.5.4 Transaction Recording

Transaction recording is to be an accumulation of all the changes which occur on the data base. A file is to be created daily on which all of the transactions affecting the data base are to be recorded in chronological order. For

each transaction, the exact time as appears on the computer clock, the user's identification code, and the previous and current element value are to be recorded. These data are to be reported in the daily Valid Transaction and Valid Table Transaction Reports. Please see figures 2.2-4 and 2.2-5.

3.0 HARDWARE REQUIREMENTS

PDS will operate on the CDC CYBER 74 computer under KRONOS operating system and System 2000 Data Base Management System. The data base is to reside on high speed direct access mass storage such as the CDC 844 disk system.

The peripheral equipment capabilities required for support of PDS are a card reader for batch run request, a high-speed line printer for offline reports, several magnetic tape drives for transaction recording and report files, thirteen identified remote terminals with hardcopiers (Hazeltine 4000 terminals are required for the PDS applications), communications equipment for maximum of ten concurrent online users. The estimated data base size, core storage requirements for application software, and the usage requirements are contained in the Program Implementation Plan (PIP) for PDS. Additional requirements include:

- Timing Requirements
  The CYBER computer must be available from 7 a.m. to 7 p.m., Monday through Friday, for on-line activities and sufficient time allocation after 7 p.m. for timely batch operation. Any additional operational periods should be approved by the data base administrator. The computer system should be immediately available 90% of the prime shift (day) time for the maximum ten concurrent users, and no more than a 30-minute wait should be required for the other 10% of prime shift time. This requirement does not include downtime.

The average on-line response time for update of a single problem or a direct retrieval of a problem is to be less than 30 seconds, while the worst case response should be less than three minutes. The average on-line response time for data searches (retrievals based on multiple search criteria with optional sorting) with criteria which may qualify more than one problem is to be less than one minute, while the worst case should be less than ten minutes.

The turn-around for batch runs should be less than 48 hours.

- Reliability

  The data base is to be recoverable to the last valid input command in the event of computer system malfunction. This will be effected by periodically copying the data base onto magnetic tape and by recording each transaction change made to the data base. In the worst case, no more than one day's worth of data base transactions shall be lost.

  The computer is not to be down for longer than 2.5 hours during a one week 7 a.m. to 7 p.m. Monday through Friday prime shift. The critical item for batch mode is to produce the required Open Problem Lists when scheduled.

- Remote Terminal Locations

  The following terminal locations are identified for PDS operation:

Terminal Location	User Organization	Number of Terminals

Boeing Bldg.	PAE	2
JSC Bldg. #45	SR&QA	2
JSC Bldg. #1	SSPO	1
	OPO	1
	PSD	1
Downey, CA	JSC	2
Huntsville, AL	MSFC	1
Cape Canaveral, FL	KSC	2
Vandenburg, CA	USAF	1
	TOTAL	13

4.0 TEST REQUIREMENTS

4.1 TEST DATA

The sources of test data to be processed by the system will be provided by QAD and LEC/ASD. Initially, testing operations will be conducted on the data resident in the Interim Problem Data System Data Base. This data base will be established by a transfer and/or conversion of all data from the Interim System data base to the initial PDS active data base. The Interim System data base will include data for all orbiter and system level problems. In addition to the problem reports existing on the Interim System data base, all necessary tables (code tables, security tables, etc.) will be input onto the data base. Subsequently, additional test data will be submitted as required.

4.2 GENERAL TEST APPROACH

The over-all procedures to be followed in testing will be stated in the System Test Specification, where the exact input data to be supplied and the operational type test output to be expected will be defined. The testing will be performed in a facsimile of a real life environment as the final item before release. Representative testing shall include, but not be limited to:

- Sample problem reports
- Code Tables
- Translation Tables
- Access Codes
- Error conditions (data that contains errors that

will test error conditions)

The test specification shall describe various test phases:

- Subsystem test specifications, including a check performed on all subsystem codes and options.
- Systems test specification, including interface checking and demonstration of user requirement performance.
- Integration test specifications, including a demonstration of maximum terminal operations.
- Production Test/Validation

4.3 ACCEPTANCE CRITERIA

During testing, a sufficient amount of data manipulations, system operations and hardware demonstrations will be conducted to establish that the PDS system meets all performance requirements outlined in this DRD.